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FIRST STEPS IN WINEMAKING

**A complete month-by-month guide to winemaking (including
the production of cider, perry and mead) and beer brewing at
home, with over 130 tried and tested recipes**

3rd EDITION

6th IMPRESSION

By

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(Editor, The Amateur Winemaker)

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Andover, Hants

About this book

THIS little book really started as a collection of recipes, reliable recipes which had appeared in the monthly magazine, "The Amateur Winemaker." First published in January 1960, it was an instant and phenomenal success, for a quarter of a million copies have been sold, and it is now recognised as the best "rapid course" in winemaking available to the beginner.

This new edition has the advantage of modern format, and better illustrations, and the opportunity has been taken to introduce new material and bring the book right up to date.

Those who are in need of recipes, and who have probably just fallen under the spell of this fascinating hobby of ours, will also want to know more of its technicalities, so this book includes a wealth of practical tips and certain factual information that any winemaker would find useful. In particular, the hydrometer, ignored in many books on winemaking, has been dealt with simply but adequately, and there is a really practical section on "home-brew" beers and ales . . . you will find this small book a mine of useful knowledge.

The original recipes are there, over 130 of them, with quite a few others, and they are all arranged in the months of their making, so that you can pursue your winemaking all the year round with this veritable Winemakers' Almanac. Further up-to-date recipes appear in the companion volumes, "130 New Winemaking Recipes" and "Home-Brewed Beers and Stouts" "Making Wines Like Those you Buy" and "Making Mead" (each 5/-, post 8d.).

I hope you will enjoy this book as much as I have enjoyed writing it . . . best wishes for successful winemaking!

C. J. J. BERRY.

Wine vocabulary

AEROBIC FERMENTATION: A fermentation conducted in the presence of air. Usually the first part of the fermentation process.

ANAEROBIC FERMENTATION: A fermentation from which air is excluded; the second part of the fermentation process.

BODY: The fullness of a wine.

CAMPDEN TABLETS: Useful in winemaking for various sterilisation or purification purposes. They supply sulphur dioxide in convenient form.

CARBON DIOXIDE: The colourless, odourless gas given off by a fermenting liquor.

DRY: A wine is said to be dry when all the sugar in it has been used up by the fermentation: it is also said to have "fermented right out"

FERMENTING (or "working"): The process brought about by yeast acting upon sugar to produce alcohol and carbon dioxide,

FERMENTATION TRAP (or Air LOCK): A little gadget used to protect the fermentation from Infection by the vinegar fly. Also called a "bubbler."

FINING: Removing suspended solids from a cloudy wine by filtering or adding wine finings.

FLOGGER: A wooden tool for banging corks home.

FORTIFICATION: Increasing the strength of wine beyond that possible by natural fermentation by adding spirit.

HYDROMETER: An instrument for measuring the weight (or sugar content) of a liquid.

HYDROMETER JAR: The jar in which a hydrometer is floated for a reading to be taken.

JELLY-BAG: For straining wines thoroughly.

LEES: The deposit of yeast and solids formed during fermentation.

LIQUOR: The unfermented, sugar-containing liquid which will eventually be wine.

MALO-LACTIC FERMENTATION: See p. 36.

MUST: The pulp or combination of basic ingredients from which a wine is made.

NUTRIENT: Nitrogenous matter added to the liquor to boost the action of the yeast; yeast food.

PROOF: Proof spirit contains 57.1% alcohol. 70 deg. proof really means 70% of proof spirit. Thus ordinary proprietary bottles of spirit will contain only 40% alcohol by volume

RACKING: Siphoning the wine off the lees to clear and stabilise it.

STABLE: A wine is said to be stable when there is no danger of further fermentation.

STOPPER: A cork or polythene bottle closure with a projecting cap.

VINEGAR: Wine which has "gone wrong."

VINEGAR FLY: The winemaker's biggest enemy. If a vinegar . fly gets at your wine it may turn to vinegar.

A fascinating craft

IF you are toying with the idea of trying your hand at winemaking, delay no longer. Go right ahead! By so doing you will be joining the thousands of happy folk who, in recent years, have discovered this intriguing and rewarding hobby. It is, indeed, a pastime which truly "brings its own rewards," for there can be few pleasures to equal that of being able to offer a friend, and enjoy with him, a glass of one's own wine.

In post-war years there has been an astonishing revival of home winemaking in Britain; wine, it is true, has been made here for centuries, but sugar scarcity during World War II and lack of opportunity debarred many from taking up the pastime, and it was left to the few to keep our craft alive. Now, however, it is attracting the interest of thousands, and scientific developments and the spread of wine-making knowledge have made it possible for anyone to produce a palatable wine in their own home.

There is absolutely no restriction upon how much wine you make as long as it is entirely for your own consumption, *but not a drop of it must be sold*, or you will be in trouble with the law. Nor must you distil, a practice which is both dangerous in that alcohols which are not safely potable may be produced, and illegal, carrying very heavy penalties. You may also brew at home as much duty-free beer as you like, but not a drop of it must be *sold*, since no duty has been paid upon it.

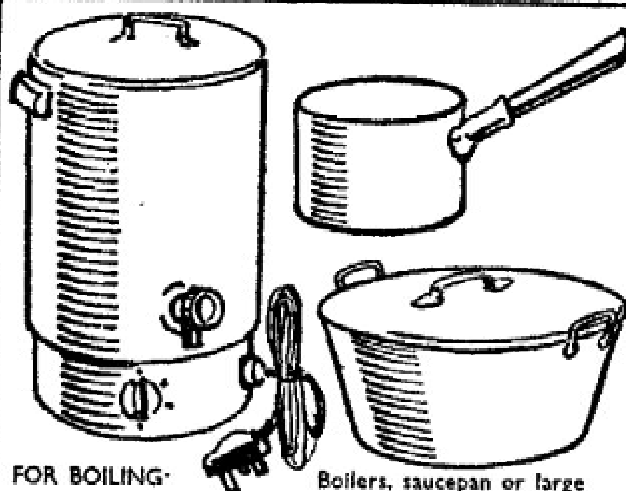
What you will need

DO not, at the outset, buy a lot of expensive equipment: it is better to *start* making wine with what you have—you probably have in your kitchen already some of the essentials—and then to acquire the rest by stages as the necessity arises. For a start you will undoubtedly need some kind of boiler, and if you can lay your hands on one that will hold three to five gallons it will prove ideal. Failing that, you can "make do" with a one-gallon or one-and-a-half-gallon saucepan.

Avoid containers and utensils of iron, brass and copper, which may be affected by acid and impart hazes and flavours to your wine; use only boilers of aluminium or sound—unchipped—enamel ware.

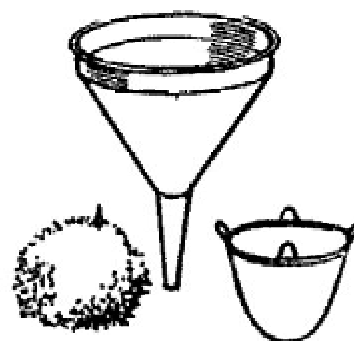
You will also need a large vessel in which to do your soaking, or mashing, and one of three to five gallons is ideal. The most commonly used nowadays is a plastic dustbin, since it is cheap, easy to clean and store, and light to handle, and when it splits or is useless for winemaking it can start doing duty as a dustbin! Alternatively you can use an earthenware crock of some sort.

Tall, cylindrical ones are the most convenient, since they are easier to cover and take up less floor space than the "bread-pan" variety. They should be hard salt-glazed, since lead glaze can have poisonous results. True, it is rarely encountered on domestic vessels nowadays but one does occasionally come across it on very old ones, or on those of Middle Eastern origin, so this warning needs to be issued! Salt glaze is hard, but lead glaze is soft, and can be dented with the thumbnail. You probably already have a polythene bucket, and will find this extremely useful for small quantities; polythene vessels are excellent for winemaking.

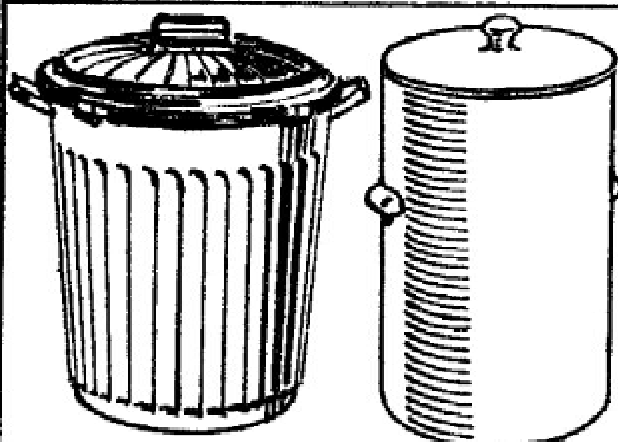


FOR BOILING:

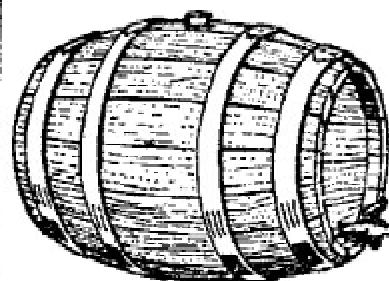
Boilers, saucepan or large aluminium fish-kettle



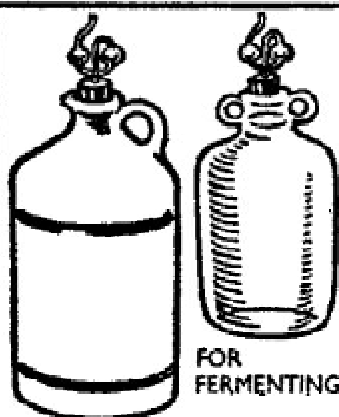
FOR CLEARING:
Jellybag or asbestos pulp



FOR STEEPING: Plastic dustbins or buckets, large crocks or bowls



FOR STORAGE:
Casks, 1 gal. jars, Winchesters,
½ gal. jars, bottles



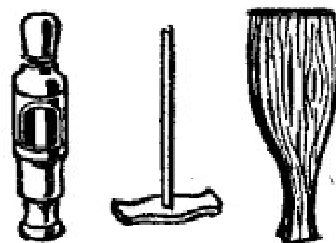
FOR
FERMENTING

Stoneware, glass, polythene

equipment
needed for
home
winemaking



FOR STRAINING: Muslin, or nylon sieve



Corking tool Cork borer Flogger



Corks and stoppers

Also obtain several one-gallon glass jars for fermenting—those with "ear" handles are the most popular—and some rubber bungs and corks to fit. These jars can often be obtained cheaply from grocers, cafes, or hairdressers, for they are used for fruit squash and chemicals in bulk. On no account omit to buy or make as many fermentation traps (see separate chapter) as you are likely to need, for they are indeed the winemaker's best friend.

You will also find it useful to collect ½ -gallon bottles (Winchesters) and a supply of white wine bottles—NOT squash or sauce bottles, *please!*—and corks or stoppers to fit. It is a false economy to use old corks, which may infect your wine; always use new corks, and soak them in a sterilising solution before insertion. Alternatively, buy some of the new plastic stoppers which can be used over and over again, after sterilising by boiling water.

You will find a funnel, a really large polythene one, most useful, and it is worth obtaining some nylon sieves or material for straining purposes. Do not forget to obtain, too, a supply of Campden tablets (ordinary fruit-preserving tablets) which have many uses in winemaking, and a rubber or polyvinyl tube for siphoning the wine off the yeast deposit. A colander, scales, a wooden spoon, and measuring jugs you will already have in your kitchen.

Refinements

THESE are the bare essentials, but undoubtedly as you progress in winemaking you will add other pieces of desirable equipment—a thermometer, a hydrometer for calculating the strength of your wine, glass tubing for taking samples, small funnels, casks, stone jars, tie-on labels for jars and stick-on labels for bottles, a corking device, a cork borer, jelly bags for straining, a bottle-cleaning brush, and perhaps a small press or one of the quite inexpensive juice extractors now obtainable which can do so very much to remove the "cookery" from winemaking and make it that more pleasurable. You may even go to the length of wanting to be *entirely* sure of accuracy, so much so that you will need some acid measuring equipment. But there is no need to bother about all this at the outset. That is the beauty of winemaking, you can tackle it as you please, either in comparatively simple fashion with the help of recipes, or by going the whole hog and delving more fully into its scientific side, making up country wines to suit your own taste in the light of your experience.

Cleanliness

COMPLETE cleanliness is most important to the wine-maker; all his vessels, bottles and equipment must be not only visually clean but chemically clean. Airborne yeasts and vinegar bacteria (see: The Vinegar Fly) can only be kept at bay by constant vigilance, and the simplest answer to the problem is to make up a sterilising solution.

Dissolve two Campden tablets (ordinary fruit-preserving tablets, which are sodium metabisulphite and will give you the sulphur dioxide you need) and a saltspoon of citric acid in a pint of water.

Make up a quantity of this: use it to sterilise your bottles and equipment, but note that it must be kept in tightly-corked bottles or it will deteriorate. Use it to rinse all your equipment before and after use, and also to sterilise your fermenting vessels. A small quantity can be used to

do many jars and bottles by pouring it from one to the other, corking, rolling and shaking each one in turn so that all parts of the interior are moistened. Wipe round the neck of the bottle with cottonwool dipped in the solution.

This is a much quicker, simpler (and safer) method than using boiling water or "baking in the oven," as some books recommend.

One-gallon jars and Winchesters can safely be stored and kept sterile if half an inch of the solution is left in the bottom of each, and they are tightly corked.

If you cannot obtain Campden tablets, make up instead a stock solution of potassium (or sodium) metabisulphite ($K_2S_2O_5$) by crushing 5 oz. of the crystals in warm water and making the quantity up to 1 gallon. Use as follows:—

For sterilising corks, barrels, bottles and apparatus:

8 Fluid oz. of stock solution, plus $\frac{1}{4}$ oz. citric acid, made up to 1 gallon with water;

To purify the must before fermentation:

$\frac{1}{2}$ fl. oz. of stock solution per gallon of must;

To sterilise completely a most or Juice:

1 $\frac{1}{2}$ fl. oz. per gallon of must.

To prevent fermentation in hot weather double that quantity might be needed.

What wine is

TRUE wine is the product of the grape, we are often reminded, but any winemaker of experience will assure you that we have no cause to feel in any way ashamed of the "country wines" which can be produced from our native fruits, berries and flowers. Many of these sound wines, robust or delicate according to character, dry or sweet according to one's taste, are truly wines in their own right, quite capable of standing comparison with many which can be obtained commercially. You may find this difficult to believe, but, when you have produced what you think is a good wine, compare it with a commercial wine of similar type, and we guarantee you will be pleasantly surprised.

And once one understands the basic principles, it is by no means difficult to make wine at home. True, the more you make, the more discerning and critical your palate will become, and the more you will find yourself seeking to capture in your own wines those elusive qualities which go to make a great wine. Even the complete beginner, however, can by following a recipe produce a sound and satisfying wine—often without knowing how or why! It is, however, infinitely better to understand the principles of the craft.

Our country wines, one might say, have four main ingredients initially: (1) Yeast, (2) Sugar, (3) Flavouring and (4) Water. There are others which play their parts, notably acids, tannin, and substances which nourish the yeast, but for simplicity's sake we will ignore them for the moment, and deal with them later. Time, the time required for maturation, also plays an important part.

Of these main ingredients undoubtedly the most important is YEAST. Yeast is a minute living organism which brings about the fermentation, and if the fermentation is to be successful the yeast must be given ideal conditions in which to work. Those conditions are found in a

sugary, slightly acid solution such as a fruit juice, when certain other yeast nutrients are present and when the temperature is favourable, say 65° to 75° F, (18-24° C.).

Fermentation

THE alcohol which we seek as an ingredient of our wine is a by-product of the yeast's process of self-reproduction.

When the yeast is put into a sugary solution, it begins to multiply vigorously, and in the complex chemical processes which ensue, the sugar is converted roughly half to alcohol by weight and half to carbon dioxide—the babbles in your beer, wine, cider or champagne.

It is an encouraging thought that for every bubble you see in your wine there is an equal weight of alcohol! The fermentation will be in two stages, but there is no distinct dividing line. The first, the aerobic ("with air") fermentation, will be comparatively vigorous, perhaps with some froth, but may last only five or six days. The wine will then settle down to the secondary, anaerobic ("without air") ferment, which will be much quieter and which towards the end may be barely discernible. This may last two, three or four months, or even longer.

Temperature plays an important part. Above 100 deg. F. (38 deg. C.) the yeast will certainly be killed; at too low a temperature it will ferment only very slowly, if at all. A fermentation should be started off at about 70 deg. F. (21 deg. C.), the secondary fermentation should be at about 60 deg. F. (16 deg. C), and the finished wine should be stored at 50 deg. to 55 deg. F. (10-13 deg. C). So the temperatures are easy to remember—70, 60, 50 F. (or 20, 15, 10 C.). A slow, quiet fermentation usually produces better wine than a fast, over-vigorous and short one, and there is no need to be fussy within 5 degrees F.

During the secondary fermentation it is wise to employ a device called a fermentation trap, or air lock, which both cuts off the air supply to the yeast and protects your wine from bacterial infection, of which more later.

As the fermentation proceeds, so the alcohol content increases, until finally it reaches a concentration (usually about 16-17% alcohol by volume) which is such as to inhibit the yeast, preventing any further activity. Any sugar still left in the wine then remains only as a sweetening agent. Once the fermentation is finished the wine will not normally become any stronger no matter how long it is kept, although it will undoubtedly mellow with maturity. So discount all the stories you hear on the lines: ". . . and this wine was 40 years old; it had become as strong as whisky!"

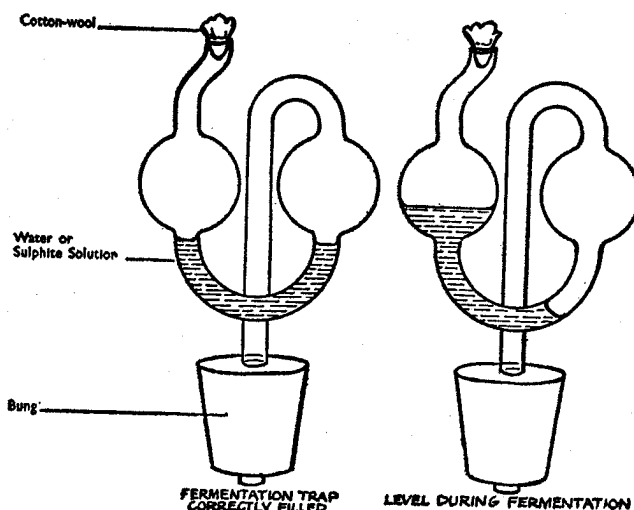
The vinegar fly

THE worst possible mishap which can befall a winemaker is to have his wine at one stage or another turn to vinegar (from the French *vinaigre*: "sour wine"), which it can quite easily do if vinegar bacteria are allowed access to it. These bacteria are, like yeasts, present everywhere about us, but are sometimes introduced to the wine by that obnoxious carrier, the vinegar fly. This tiny fly, which appears as if by magic around any fermenting liquor or fruit, is the wine-maker's biggest enemy; it must at all costs be kept from your wine. If it gains access the liquor, instead of

turning to alcohol, will turn to vinegar, and you will have the sad task of pouring it down the drain or using it for cooking, for it will be quite irreclaimable.

The wine can be attacked at any stage, and that is why you *must* cover the first ferment closely with a thick cloth. The principal danger, however, occurs not so much then, when the ferment is vigorous, as during the slow, quiet secondary fermentation. Vinegar flies are drawn to it as if by magic.

The fermentation trap



It is then that one needs to employ a fermentation trap. This is a simple device, being in effect an air-lock, and we illustrate what is undoubtedly the most popular and commonly used pattern, a glass U-tube with two bulbs.

This is inserted in the bung or cork of the fermenting vessel so as to be an airtight fit (this is important, or the lock will not work), and a good tip is to use rubber bungs rather than corks to ensure that there is no leakage. It is advisable to lightly grease the glass trap's stem and hold it in a thick cloth when pushing it home, to avoid the risk of breakage and a hand badly cut by jagged glass. The bottom of the glass stem must be above the level of the fermenting liquor; a half to three-quarters of an inch is normally sufficient, as long as the liquor is not frothing so vigorously as to force it out through the trap.

The U-bend of the trap is then filled with water, to the bottom of the bulbs, and in the water is dissolved one eighth of a Campden tablet. Thus, even if a vinegar fly gets into the water, and meets an untimely end, your wine will be safe, whereas if you have plain water in your trap it will become infected with the bacteria from the dead fly. In that case, since the inner end of the water is in aerial contact with your wine, it is still possible for your wine to be infected. So always use this small quantity of sulphite in the bend of your traps, and renew it every month or so. Alternatively, use in the trap glycerine or borax, which is less volatile and will not deteriorate.

Yet another method is to use plain water, but to plug the top of the trap with a tiny tuft of cotton wool to deny the flies access.

The fermentation trap, incidentally, has a secondary purpose. The yeast, for the reproductive process which it first employs, needs oxygen.

When, by means of the fermentation trap, we cut off its air supply, we force it to turn to a secondary method of self-reproduction which it can use without oxygen, and which is appreciably more productive of alcohol. Of this, naturally, we are wholly in favour!

The air-lock is also a valuable indicator as to when fermentation is finished.

As the wine ferments, it gives off carbon dioxide, which quickly builds up a pressure within the fermentation jar or bottle, and then pushes its way through the solution in the trap with quite a musical "blup . . . blup . . . blup. " This, you will find, is quite fascinating to watch. As the ferment proceeds, the bubbles will pass ever more slowly until finally the solution in the trap remains poised and no more gas passes. It is then a good idea to move the jar into a warm room for five or six days to see if any further activity develops. If not, it can be assumed that the fermentation has finished. . . but make sure that your cork or bung is still air-tight and that gas is not escaping through it or from its junction with the tube of the trap, or naturally the trap will not work. Rubber bungs are best; corks need to be waxed.

Making your own

There are several other patterns of air-lock on the market (we illustrate one or two), and you will eventually decide for yourself which you prefer, and may well even make your own. A plastic or glass tube leading down into an aspirin bottle or yeast phial containing sulphite solution and secured to the fermenting vessel with sticky tape, will answer quite well, as long as you remember to remove the phial before uncorking the jar. If you do not, the sulphite solution will be siphoned back into your wine as you withdraw the cork and thus reduce the pressure inside the fermenting bottle. It should be noted that this minor disaster can also happen if the pressure inside the fermenting vessel happens to drop below that of the surrounding atmosphere, the sulphite in the trap will be sucked back into the wine, which is bad for the wine and worse for the temper.

This can be avoided by using two phials instead of one, and coupling them as shown in the diagram.

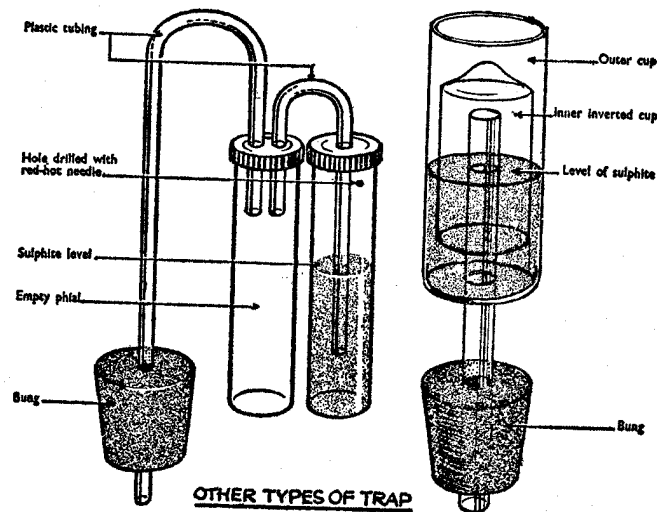
Two plastic tablet-phials of any sort will do (those such as yeast is supplied in are ideal) and you will also need some tubing such as is supplied for use with tropical fish tanks. This is easier to use than glass, because it is smaller in bore and can be bent to shape in hot water. The diagram is self explanatory; all joints, of course, must be air-tight. The pressure is allowed to escape by means of a tiny hole drilled in the second phial with a red hot needle or fretwork drill. (If small glass bottles are used cut a V-groove down the side of the cork instead.) The twin phials can be secured by means of sticky tape.

During fermentation carbon dioxide will bubble out through the solution as with other traps, but if the pressure in the fermenting vessel drops below that externally, the sulphite is sucked back only into the first phial, and not into the wine.

Another simple idea is to use an ordinary rubber balloon, stretching it over the neck of the bottle. The pressure of the gas will inflate the balloon, and when inflation ceases the ferment is finished. For wide-necked jars or crocks one can use a sheet of polythene, secured with a stout

rubber band. This too will be bulged out by the pressure of the gas, which will escape from beneath the band.

Other types of trap



We illustrate a kind of trap used on the Continent and becoming increasingly popular over here because it is made in clear, non-fragile material, and is unbreakable in ordinary use, far more so than the rather fragile glass models. It consists of a cup into which the tube from the fermentation jar rises, and inverted over the top end of the tube is another smaller cup. Sulphite solution is poured into the trap as shown, and when gas is given off by the ferment it lifts the inner cup up and down to escape beneath its rim, through the solution.

Yeasts

THE essential thing to realise about winemaking, is that the most important and central factor is the YEAST. The whole of winemaking practice really comes down to the matter of providing ideal conditions for the yeast, a living organism, to thrive and multiply. To do that the yeast must have sugar, it must have warmth, it must have oxygen, it must have a certain amount of nitrogenous matter, vitamins, and some acid. The ideal "recipe" will provide all of these; if any one of them is lacking the ferment may "stick," or temporarily stop.

Wine yeasts

ONE of the big strides which has been made in winemaking is that there are now available to the amateur many excellent varieties of special wine yeasts, in either culture or tablet form. Their value is unquestioned, for there are innumerable varieties of yeasts, all with different characteristics, and just as some are more suitable for baking or beerbrewing, so others are better for the production of quality wine. A good wine yeast has a high alcohol tolerance (i.e., it will allow the wine to ferment further and be that much stronger before it succumbs) it will form a firmer sediment, making racking much simpler, and it will be less prone to impart "off" flavours to the wine.

It is possible to obtain Port, Sherry, Madeira, Tokay, Malaga, Champagne, Sauterne, Pommard, and Burgundy yeasts, to mention only a few.

These yeasts are laboratory-cultured from the yeasts on the grapes in the place of origin, and it is great fun to experiment with them, and see the different nuances of flavour that they confer.

But do not imagine that you will obtain, say, a port simply by using a port yeast. The ingredients must be suitable as well. If they are, you are certainly more likely to obtain a port-like wine by using a true port yeast; the flavour will be unimpaired, and you will have the other advantages already mentioned.

It is naturally advisable, when using these specialised yeasts, to employ them in musts which will be sympathetic to them, i.e. a Port or Burgundy yeast in a red wine such as elderberry, sloe or damson, and a Champagne yeast in a sparkling wine. The beginner will do best, however, to experiment first with a good general-purpose wine yeast. One can also obtain a fairly good range of yeasts especially suitable for lager, beers and ales.

Many winemakers, one must admit, still adhere to baker's or brewer's yeasts, but it is a pity to do so without having tried some of the excellent true wine yeasts now on the market. They are certainly worthwhile for one's "special" wines, and are by no means as expensive as they at first appear, since they can be propagated and carried on from one wine to another. Wine yeast, granulated yeast, yeast cultures, yeast tablets, baker's yeasts, brewer's yeasts, liquid yeasts . . . all will make wine—of varying quality—and which yeast you use is a matter of personal preference.

Making up a starter bottle

IF you do purchase a wine yeast, of whatever sort, it will usually be supplied in only a small quantity and will have to be "activated" for use. All this means is that you start it working, and therefore multiplying, so as to build up a much larger number of active yeast cells for introduction to the must. The principle is the same in most cases.

Instead of adding the wine yeast direct to the must, one starts it off in a specially-prepared bottle of sterilised fruit juice of some sort, and nutrient, and then, when the contents of the "starter bottle" are fermenting vigorously, they are added to the must. The yeast thus has a much better chance of succeeding, since it is already in full activity.

The snag, of course, is that one has to remember to activate the yeast in this way about 48 hours before it is likely to be needed, to allow time for this starter fermentation to get under way. Once a yeast has been activated, this problem diminishes, for a little of it can always be kept back and "grown on" in another starter bottle by adding more fruit juice, water, sugar and nutrient, and the process can be repeated *ad infinitum* as long as care is taken to keep the yeast under sterile conditions.

One can buy yeast cultures either in test-tubes (sufficient for one or two gallons) or in bottles, for from five to ten gallons.

For the starter juice, one can use either the juice from which the wine is to be made (if some can be obtained beforehand), or some other fruit juice. Since you need half a pint of it the flavour of your wine will not be affected materially if you use a different juice from that of the bulk. To this add an ounce of sugar.

Another good starter is: a tablespoonful of pure malt extract, a tablespoonful of granulated sugar, the juice of a lemon, and half a pint of water.

Whichever you use, bring it to the boil in an aluminium or sound enamel saucepan to sterilise it, and then allow it to cool.

To activate a tube culture first sterilise a small bottle by boiling it in water for five minutes. Then allow it to cool, plugging it with cotton-wool. Stand the tube culture in warm, NOT boiling or really hot, water for a few minutes to loosen the agar or jelly-like slide which bears the yeast culture, and then, with a knitting needle which has been dipped in boiling water, slide the agar, and with it the yeast, into the bottle. Then pour in the prepared starter juice, plug the neck of the bottle with cotton-wool, and stand in a temperature of about 70 deg. F. After about two or three days the starter bottle will be in full ferment and tiny bubbles will be seen rising to the surface. It can then be added to the main bulk of the liquor.

The bottle culture is a little handier, for the juice, prepared as above, has merely to be poured into the yeast bottle, and the cotton-wool plug replaced. After 24 hours in a warm place (about 70 deg. F.) fermentation will be under way and after a few days there will be enough active yeast to start off 5-10 gallons of must.

If you wish to use the starter bottle at intervals over a period make a starter from four ounces of orange and two ounces of lemon juice (preferably strained), plus four ounces of water and one ounce of sugar. When the yeast has been added and it is fermenting three-quarters of it can be used to activate a brew, and the remaining quarter can be topped up with juice made in the same way and will after a week or so also be fermenting and ready for use.

Wine yeast is also sold in tablet and in liquid form, but must still be activated in the same way before use. Individual suppliers send detailed instructions with their yeasts, so there is no need to worry; you will find it quite simple.

Baker's yeast, brewer's yeast, or granulated yeast (the packeted variety) can be added direct to the liquor. Baker's yeast should be fresh. It is best added when the temperature of the liquor is lukewarm, about 70 deg. F. These will give you a more vigorous and frothy ferment than a wine yeast; this does not help the wine, but it perhaps does help someone who is just starting winemaking and who wants to be sure that a ferment really *has* got going.

In all the recipes in this book use a wine yeast where possible or, failing that, 1 level teaspoonful of a good granulated yeast per 1 gallon of liquor, or ¼ oz, baker's or brewer's yeast.

"NO yeast" recipes

INCIDENTALLY, beware of all recipes which omit any mention of yeast, there is no such thing as a "no yeast" recipe for the simple reason that without yeast there can be no fermentation of the sort we want. Yeasts are everywhere about us—in the air, in the soil, the bloom on fruit, in milk, in our mouths—and will find their way into a fermentable liquor. If you use a "no yeast" recipe, you are really simply relying upon any natural yeast which may be on the fruit you used or, if you killed that with boiling water or sulphite, upon any airborne yeast which may find its way into your brew . . . you *may* get a fermentation but the result may be not at all what you hope.

How yeast nutrient helps

TO obtain the best possible fermentation the yeast, like most living organisms, must have both food and oxygen. Like human beings, it needs both vitamins and fresh air! The ideal medium for fermentation is pure grape juice, which contains all the nutrients, or foods, that the yeast requires, but some of the liquors we ferment for country wines (notably mead and all—the flower wines) are deficient in them, and it is therefore wise to add a nutrient to give the yeast a "boost," the nitrogenous matter mentioned previously.

You can obtain several good proprietary yeast nutrients from trade sources, but if you wish to have your own made up by your chemist a good formula, similar to that of the British Bee Keepers' Association, is:—

Ammonium Sulphate			60 grains
Magnesium Sulphate			8 grains
Citric Acid			130 grains
Potassium Phosphate			30 grains

(480 grains = 1 oz.)

This is for a gallon of **mead**: halve the quantities for one gallon of wine.

Buy it, ready-made up, from your chemist, thoroughly mix the chemicals by shaking vigorously in a small quantity of water in a medicine bottle, and add to the brew at the same time as the yeast.

If you cannot obtain even this nutrient, on no account omit some acid, which is the most important single ingredient; when making up your must, or pulp for fermentation, include the juice of a lemon, or ¼ oz. of citric acid. If there is no acid at all in the ingredients, about ¾ oz. citric acid per gallon of must should be added.

If, on the other hand, the recipe you are using already includes lemon juice or citric acid, omit that in the nutrient or the wine may be over-acid. The addition of nutrient will enable the yeast to carry the fermentation just that little further, a great help in the production of strong, *dry* wines, and in the avoidance of oversweet wines. Failing all else, use 1 dessertspoonful of malt extract per gallon.

Sugars

MANY old recipes advocate far too much sugar, with the result that the winemaker is disappointed when the yeast fails to use most of it up, and he is left with a syrupy, almost undrinkable concoction.

As a good rule of thumb, remember the figure 3—3 lbs. to the gallon of liquor for a medium wine. Half a pound less will usually produce a dry wine, half a pound more a sweet. Below 2 lbs. of sugar to the gallon the wine may not be strong enough to keep, above 3J it may well (although not always) be sickly sweet.

So remember—2 ½ lb., dry; 3 lb., medium; 3 ½ lb., sweet.

Many old recipes, too, specify candy sugar, but this is a hangover from the days when most sugar was unrefined and this was the best quality obtainable. Nowadays there is little to choose, for all practical purposes, between modern refined beet or cane sugars; they are all of excellent quality. Brown or Demerara sugar will impart a golden colour to a wine. It is therefore sometimes used to colour an uninteresting looking wine, but it should not be used with wines where one wishes to retain a delicate natural colour from, say, a flower. It will also impart a slight flavour.

"Invert" sugar, too, is now available to winemakers. When yeast sets to work upon household sugar, or sucrose, it first splits it into its two main components, glucose and fructose, or "inverts" it. In invert sugar this has already been accomplished chemically, so that the yeast can start immediately to use the glucose (the principal sugar found in grapes). Thus by using invert one may well obtain improved fermentation, improved to the extent that the yeast does not itself have to effect the inversion. Invert will ferment more quickly than household sugar, and is widely used in the brewing industry. If you wish to use invert sugar, use 1 ¼ lb. in place of every 1 lb. of household sugar specified in the recipes.

Pure glucose, or grape sugar, can also now be purchased; both this and invert are naturally slightly more expensive than ordinary domestic sugar. Honey, of course, can also be employed to produce mead-flavoured wines. With liquid honey or with thick, crystalline honey use pound for pound.

It is far better to make your wine dry, and then sweeten it to your taste, than it is to put in too much sugar at the outset, hoping that most of it will ferment out.

A dry wine can always be sweetened, but there is little one can really do about a wine which is oversweet, other than blending it with a dry one of the same type. If you decide to sugar a finished wine and are afraid this may start it fermenting again, add one Campden tablet per gallon to prevent this occurring.

It is also a good idea, since it eases the task of the yeast and makes for better fermentation, to add the sugar in stages, half the total quantity at the outset, and the

remainder by stages in 4 oz. lots each time the ferment slows. Draw off a pint or so of the wine, dissolve the sugar in it by stirring thoroughly (use no heat or you will kill the yeast) and restore the sweetened quantity to the main bulk of the wine. Any undissolved sugar in the wine may case the ferment to "stick."

Getting the flavour

THERE are several ways of extracting the required flavour from our fruit or vegetables—pressing, using juice extractors, or boiling, soaking in hot or cold water, and fermenting on the pulp—and there are advantages to each; which one uses depends on the wine being made and the equipment available (which usually means how much one is prepared to spend!).

Sometimes one first extracts the juice from all the ingredients and starts the fermentation right away. The straight juice may be fermented, but for reasons of economy (to avoid using too large a quantity of fruit) and so as not to have too strong a flavour, it is more usual for the juice to be diluted with water.

Alternatively, the fruit is pulped, the must prepared, and the yeast introduced, so that the fermentation begins immediately, and the liquor is not strained from the solids until, say, 10 days later. This is more convenient for those who do not wish to buy the more expensive equipment. Whichever system is used, the quantities advocated in the recipes remain the same.

In the latter case it is a great help to extraction to add 1 teaspoonful of pectin-destroying enzyme such as Pectozyme, Pektolase or Pectinol, to hasten the breakdown of the fruit (and, incidentally, ensure a clear wine). It should be added 24 hours before the yeast, and only when the must or juice is cool or cold. (Boiling water will destroy the enzyme.)

Pressing: ideal for grapes (which must first be broken), fruit and berries. Even if you cannot afford the luxury of a proper press—and they are not expensive now—it is well worth contriving one of your own or borrowing one from your winemaking club. I have found that the ideal combination for the serious winemaker is a Bryants AK fruit crusher with which to mash the fruit, and a Loftus fruit press with which to press it: these will deal effectively with almost anything, even, say, a hundredweight of apples.

Extractors: the modern way Juice extractors can now be obtained quite cheaply and range from the simple, handoperated one which is a development of the old-fashioned mincer to sophisticated, powerful electric models such as the Kenwood, Beekay and Vitamine. Of these I have used only the Beekay regularly, and must say that this is winemaking de luxe, and is probably the ideal solution for someone who uses 10 or 12 lb. of fruit at a time. It is effortless; but the filter has to be cleaned out after every 4 or 5 lbs. and this becomes tedious when doing larger quantities.

Cheaper than these, or than a press, is a steam extractor, and this, like the others, will separate the juice from the pulp most efficiently. One point to note is that fruit or vegetables should not be left in the steam extractor for longer than 10 minutes or it will have the same undesirable effects as over-boiling.

Boiling: (necessary with some root and fruit wines) is a method that has to be used with care, for if the ingredients (particularly parsnips and plums) are overboiled it may later prove difficult to get the wine to clear. The liquor is then strained off the solids, cooled, and fermented.

Cold water soaking: the fruit is pulped or the must prepared, the yeast is introduced, and the liquor is not strained from the solids until, say, ten days later. This can be used with hard fruit as a preliminary to pressing. All you really need is a large crock or dustbin.

Hot water soaking: boiling or near-boiling water may be poured over the ingredients, which are then left to soak for three or four days, the yeast having been introduced when the must has cooled to 70 deg. F. (21 deg. C.). The liquor is then strained off.

Where boiling water is used the must will have been purified, for any wild yeast which may have been present will have been killed, but if pressing or the cold water method are employed it is as well to add one Campden tablet per gallon, and to wait 24 hours before adding one's chosen yeast. The sulphur dioxide of the tablet will dispose of unwanted wild yeasts but 24 hours later its action will have abated sufficiently to allow your, selected yeast to start working satisfactorily.

When, by one of these means, the flavour has been extracted, the sugar is added and the yeast and yeast nutrient introduced in order to cause fermentation, and the fermentation is then conducted as described later.

Acidity

. . . plays a vital part in determining wine quality. Lack of acid will mean a poor fermentation, and a "medicinal" taste in the finished wine, which will also lack character and seem insipid. In any wine it is essential that acidity, tannin content and degree of sweetness should be "in balance" according to the type of wine being made (a sweet wine will need more acid than a dry). A quarter of the original acidity of a must disappears during fermentation (so that tasting one's must affords some guide) and a finished wine should have between 5 parts per thousand (dry) and 7 parts per thousand (sweet). This, in most recipes, will be obtained by adding the juice of one, or two, lemons, or $\frac{1}{4}$ — $\frac{1}{2}$ oz. citric acid.

A simple way of testing the acid content of a wine or must is to use B.D.H. Narrow Range pH indicator paper (aim at a colour reaction equivalent to between pH 3 and 4). This is not entirely accurate but it is probably enough for most of us.

Those wanting more precision should note that the desirable acidity of table wines, in terms of sulphuric acid, is from 4 to 6 grams per litre, according to type.

The only really satisfactory method of assessing acidity is by titration, and kits for this purpose can be bought for as little as £1. A graduated pipette is used to take in a given quantity of the wine to be tested and this is run into a beaker. A piece of blue Litmus paper is added and this is immediately turned red by the acid present. A commercially-prepared potassium hydroxide solution (11.43 grams of pure potassium hydroxide per litre, the equivalent of 10 grams per litre of sulphuric acid) is then carefully

added, until the Litmus paper turns blue again. Note how much solution you have used and from the chart provided you can tell the acidity of the wine. Do three such tests. and take the average.

Tannin

A small quantity of tannin will vastly improve the taste of most wines, giving them a zest or "bite" which is otherwise lacking, particularly in flower, root and grain wines. It is the tannin in a wine which gives an impression of dryness in the mouth after drinking; if the right amount of tannin is present, the wine will be supple and zestful, if too little, flat, insipid and characterless, if too much, harsh, astringent and bitter. Tannin is also an essential constituent if a wine is to have good keeping qualities.

Tannins come from the skins and stems of fruit—particularly red fruit, and wines made from all red fruit, and from elderberries, bilberries, sloes, damsons, plums, apples, pears, grapes, and oak leaves are liable to be rich in tannin, and usually need none added. In flower and grain wines add one teaspoon of grape tannin, a few oak leaves or pear peelings, or one tablespoonful of strong tea per gallon. It is not really practicable for the amateur to test for tannin content.

Sometimes, particularly with elderberry wines, one has an excess of tannin. This is caused by using too much fruit, by soaking for too long a period, or pressing too hard. If a finished wine is a little too harsh, it can often be vastly improved by the addition of a little sugar or glycerine, but if it is far too harsh it should be fined with gelatine or blended with another softer wine.

Conducting your fermentation

NOW let us get on with the making of an orthodox country wine. If you are fermenting a juice, or a liquor with no solid ingredients left in it, it can well go straight into a fermenting jar which, however, should not be filled beyond the shoulder, and a fermentation trap fitted. (If you fill your jar the ferment, in its first vigour, will foam out through the trap.)

The yeast and yeast nutrient are added at the same time and the jar is placed in a warm place, about 70 deg. F. A warm kitchen is ideal, but do *not* stand the jar on a stove or anywhere it is likely to be *over* heated, or the yeast may be killed. After four or five days or so the ferment will quieten, and the jar should be "topped up" to the bottom of the neck either with some of the liquor which has been kept on one side in another smaller bottle with a cotton-wool plug or airlock, or with syrup of the same strength as the original liquor. The airlock, of course, is again fitted.

The jar is then best kept at a temperature of 60-65 deg. F. until fermentation is finished. Check it regularly, particularly if you are adding sugar by stages, and watch both specific gravity and the airlock action.

When the ferment appears to have finished, move it back into a warm room for a few days to see if it restarts.

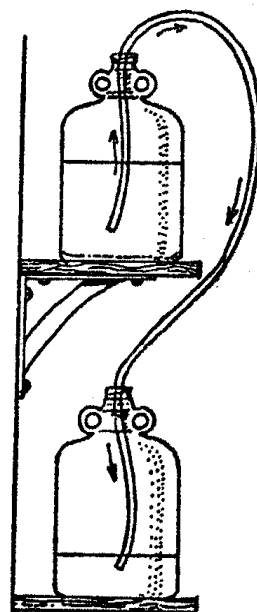
If you are dealing with a must with a large quantity of solid ingredients you will probably find that, at least for the first ten days or so after the yeast has been added, because of the great bulk, it will probably be necessary to use a crock of some sort. This must be closely covered with several thicknesses of cloth or a sheet of polythene secured with elastic to keep vinegar flies at bay. Again . . . a temperature of 70 deg. F. Do not forget to stir the must from the bottom twice daily.

At the end of the soaking period strain off the liquor through a nylon sieve or two or three thicknesses of muslin—do it thoroughly and do not hurry it—into your fermenting jar and fit your trap, carrying on thereafter as above.

Stuck ferments

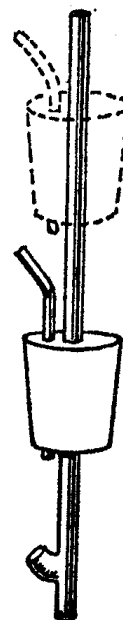
If you have used the right amount of sugar and fermentation has apparently ceased too soon (the wine will be oversweet and its specific gravity too high) the fermentation is said to have "stuck." Possible causes: Too high or too low a temperature; the yeast has reached its limit of alcohol tolerance (i.e. the wine is finished); the sugar has all been utilised (add more); too much sugar (dilute slightly); insufficient nutrient or acid (add more); insufficient oxygen (aerate by stirring and pouring); too much carbon dioxide (uncork and stir). If these and all other remedies fail make up a half pint starter with the juice of three oranges, water, 1 level dessertspoon sugar, yeast, and a pinch of nutrient. Get it going well, then add an equal quantity of the "stuck" wine. When all this is fermenting, again add an equal quantity of the wine and continue "doubling up" in this way until all is fermenting once more.

Racking



Left: The clean jar into which the wine is racked must be at a lower level. Start the siphon by sucking the end of the rubber tube.

Right: A more sophisticated syphon. The rubber tube is attached to the top of the glass tube, which can be pushed to any depth. Start by blowing on small tube. This syphon will not disturb sediment.



**RACKING OR
SYPHONING**

ONE of the most important factors in producing clear, stable wine is racking, i.e. siphoning the wine off the lees of yeast and deposited solids; more wines have been ruined by neglect of racking than from any other cause. During the first fermentation a wine will be milky or soupy—and often downright repulsive!—in appearance, and no-one would imagine that one day it will be brilliantly clear, and perhaps even sparkling. But do not dismay. Properly made, and properly managed subsequently, almost all wines will clear of their own accord. Some wines, parsnip and plum among them, are notorious for their slowness to clear; and it should be noted that it is usually where the ingredients have been boiled that this occurs, for boiling releases pectin to cause hazes in the wine. These hazes, however, should not be confused with the thick cloudiness of the early stages of fermentation.

A wine is likely to remain really cloudy for three or four months after the fermentation is started because of the yeast in suspension; then, slowly, it will commence to clear, from the top down, as the yeast and solids in it sink to the bottom, forming a thick layer at the bottom of the fermenting jar. When the wine is visibly clearing in this way—rack.

Place a clean jar below the level of the one containing the wine, and remove the bung and fermentation lock. Take a yard or so of rubber tubing (about half an inch diameter) and in one end of it fit a foot of glass or polythene tubing. Insert the tubing carefully into the wine (carefully so as not to disturb the sediment) to about half the depth of the jar, and hold it in place by clipping a wooden clothes peg around it, or by using a rubber band.

Take the lower end of the tube down to below the level of the bottom of the fermentation jar, put it into your mouth, and suck steadily (most pleasant this!). When the wine is flowing freely direct it into the new jar. As the level in the fermentation jar drops push the glass tube down further and further until you have racked off all the wine and only the yeasty sediment is left. Be careful not to siphon that into the new jar.

Before fitting the fermentation lock to your new jar of semi-clear wine, make sure that the jar is filled to the bottom of the neck, so that the minimum of air is allowed access to the wine.

Do this by "topping up" if necessary (and it usually is) with syrup, made to the same strength as your original liquor. Thus, if your original liquor had 3 lbs. of sugar to the gallon (48 ozs.) use 3 ozs. of sugar in half a pint of water.

Then insert your air lock and allow the fermentation to proceed again. At first it will probably be much slower than previously, but do not worry about this; it is because the quantity of yeast present has been greatly reduced. As the yeast gradually multiplies again so the ferment will get going once more, and a slow, steady ferment, rather than a fast one, is what you want.

The wine will also continue to clear, and the yeast will throw a second deposit. When the wine is *completely* clear, and the sediment is firm, comes the time for your second racking. (The yeast left behind on this occasion will be an excellent medium for starting off other brews.)

You may care to bottle on this occasion, but it is preferable to give the wine yet a third racking after another two months before doing so. Normally about three months elapse between first and second rackings but it is impossible to give a firm schedule since

the time to rack depends upon the progress of the individual wine. A good rule of thumb is: "When in doubt whether to rack or not . . . rack!"

Racking rarely harms a wine, and generally improves it; racking helps to stabilise the wine, thus reducing the risk of after-bottling fermentation and consequent burst bottles; racking also prevents the wine acquiring off flavours from the dead yeast upon which it would otherwise be standing.

Always make sure that your fermentation is completely finished before bottling, or you may have burst bottles, which is both messy and dangerous. Most beginners fall into the error of trying to bottle too soon, and pay dearly for their mistake.

Clearing

NORMALLY a well-made wine will clear of its own accord, given time (which can be as much as a year in some cases) but when it does not, it may be necessary to resort to fining or filtering. The best advice that we can give, however, is: *always* give your wine a chance to clear naturally. Avoid fining, which may upset the chemical balance of the wine, and filter only as a last resort, for filtering does take something out of a wine besides the murkiness.

Usually all that is necessary is to move the wine, at the end of fermentation, into a much lower temperature (say from a warm kitchen to a cold larder or outhouse, but *not* into a refrigerator). In some cases, if you have some clear wine of the same sort from the previous year, pouring some of this in on top of the new wine will rapidly clear it.

If both of these methods fail to work, it may be necessary to resort to fining. The commercial wine world uses several types, organic (gelatine, isinglass, egg whites, egg albumen powder, pure ox blood, casein, etc.) mineral (Bentonite, Kaolin or Kieselguhr) and vegetable (alkaline alginates), but some of these are risky in the hands of the amateur, since they require a reasonably exact dosage calculated as the result of experiments, and it is difficult to work down to the smaller quantities we usually need. Many proprietary wine finings work on the simple principle that tannins and proteins precipitate one another and therefore add in turn some of each.

Many prefer to play safe and buy some reliable proprietary finings, with detailed instructions; I have found "Serena" wine finings, supplied by Grey Owl Laboratories, and Klarwunder, from Semplex, good.

Failing this, a good general-purpose fining for both red and white wines is egg-white; one egg-white, thoroughly beaten into half a pint of the wine with a tiny pinch of salt will clear up to 10 gallons.

For white wines try first two or three drops of milk, for red wines up to eight square inches (i.e. 2 inches by 4 inches) of leaf gelatine. Soften it in water, dissolve in hot water, and stir it in.

If your wine remains obstinately cloudy, you can try using filter paper (Green's No. 940 or 960 is ideal) which should be folded in a series of vertical creases to present the maximum area to the wine. Fold your paper in halves, then quarters, then eighths; then unfold and refold it between the original creases, but the opposite way. It will then present a fluted appearance. A small plug of cotton-wool placed in the funnel before the

filter will prevent a disaster if the bottom point of the filter paper gives way! These papers are really efficient and fast-filtering, and admirably suited to the home winemaker's purpose, unlike others which have been sold which, whilst—useful in the laboratory, are dreadfully slow in operation, and have led winemakers to the (mistaken) opinion that filter-papers are useless to them. Even ordinary tissues, used double or treble thickness, will provide a reasonable filter.

But you may be looking for one method of fining or "polishing" that can be applied to all your wines, and that can be employed for removing hazes as well. For many years amateur winemakers preferred to use asbestos pulp, but this method is now open to suspicion in that it may be a health hazard, and we therefore do not recommend it.

By far and away the best method of clarification is fining by means of BENTONITE ($\text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2 \cdot x\text{H}_2\text{O}$), an excellent clarifying and stabilising agent. A montmorillonite clay which can absorb ten times its own weight of water, with which it forms a gelatinous paste, it causes a coagulation of the proteids, which increases proportionally as the acidity of the wine is greater and the tannin content smaller, and its action appears almost miraculous.

It can be purchased from Semplex, Rogers Mead Ltd., Boots, and most other wine supplies firms, and should be used at the rate of $\frac{1}{4}$ oz. of Bentonite to 3 fl. oz. of water. Since it will keep indefinitely, but has to be made up at least 24 hours before use, it pays to make up a quantity at a time, and preferably to do so at the outset in two small containers, so that when one is used up it can be immediately replenished, and the suspension in the second container will have been standing for weeks, or even months, and will be ready for use.

Use 1 pint bottles with flat bottoms and screw caps; fruit juice bottles are ideal. Into each bottle pour 9 fluid oz. of water (boiled and then cooled) and then funnel in 4 oz. of Bentonite. Screw on the cap and shake vigorously, impacting the liquid against the flat bottom of the bottle to force the Bentonite into suspension. Then leave the bottles for at least 24 hours, and preferably more, before use, to allow the montmorillonite particles to swell and become effective coagulators.

To use the suspension, remember that in each bottle you have $\frac{1}{4}$ oz. of Bentonite. The advocated dose for all ordinary hazes or straightforward fining is $\frac{1}{8}$ of an ounce per gallon of wine, and for really bad hazes $\frac{1}{4}$ oz., so you will need to use one-sixth of the contents for "normal" fining, and one-third of the contents for really thick hazes.

The wine should, of course, have been racked off any deposit. Draw off a little to make room for the suspension, measure out the "dose" of Bentonite, pour it into the wine through a funnel, and top up as required with wine. Re-cork, and then rotate or swirl the jar gently to mix the Bentonite into the wine. Keep it in suspension for at least 20 minutes by rocking and swirling at 3-minute intervals. Rack after a month, not before.

Egg-shells will often clear—and decolour—a white wine. Clean them, bake them in an oven—which makes them brittle—and then crush them into small pieces before adding to the wine. The tiny pieces will often rise and sink, rise and sink, for quite a long time, carrying down with them the suspended solids and thus clearing the wine, or all except the bottom quarter or so, which can be filtered.

Bottling

IT is better to use, if you can, true wine bottles ($26 \frac{2}{3}$ ozs.); they show your wine off to better advantage. Be sure that they have been sterilised, and always use new corks or stoppers (cork, NOT screw, stoppers).

Red wines, of course, should be put into dark bottles (except for exhibition or competitive purposes) or they will lose their glorious colour.

The bottles can be sterilised by means of the sulphite solution already described, and then drained; there is no need to dry them thoroughly internally. Many wine books warn against using "damp bottles," but this is only because people have been foolish enough to use bottles containing traces of moisture which may have been in them for a long time, which is not only unhygienic but asking for the wine to be spoilt by the bacteria which are inevitably present. A few drops of sulphite, on the other hand, can do no harm. The bottle should be filled to within three-quarters of an inch of the bottom of the cork.

Whichever kind of cork you use, soak it for 24 hours in cold boiled water beforehand to soften and swell it, then drive it right home. When using true wine corks, which are cylindrical in shape, a corking machine of some sort is a great help; without one, it is difficult to force the cork in far enough. A cork "flogger" serves the same purpose (see page 8).

"Stopper" corks, with cork or wooden projecting caps, are favoured by many, because they lend themselves to use with an ornamental capsule, but they do not grip quite so tightly, and are apt to be forced out again by the pressure of the compressed air beneath them. To overcome this, put a length of thick string or pliable wire inside the neck of the bottle, leaving sufficient projecting to be able to grasp it firmly. Insert the cork and drive it home. Then, holding down the stopper with the thumb of the left hand, grasp the string or wire with the right, and pull it out. As it comes out it makes a path which the compressed air follows, thus leaving no pressure within the bottle. Whichever kind of cork you prefer, always try to use new ones (and never one which has been pierced by a corkscrew). If you *have* to use an old one, boil it first.

One of the most popular stoppers of all nowadays are those made in polythene—Messrs. Bryants and others supply them—which can be used over and over again, and sterilised each time by boiling. They are neat, cheap, and ideal for the home winemaker.

Corks can be wired or tied down as shown on page 39, but the job can be done even more neatly with proper wire loops and a hand wiring tool.

Finally, finish your bottle off with an appropriate label and coloured capsule of tinfoil or plastic to cover the cork. (It looks better if label and capsule match, and are of a suitable colour for the wine, red label for red wine, yellow for yellow, and so on.) On a ordinary wine bottle the label should be about a third of the way down the body of the bottle, i.e. the top of it should be about $1 \frac{1}{2}$ in. below the shoulder, so that the main line of printing is in the "optical centre." and looks attractive. The label should be centrally placed between the seams of the bottle and not overlap them, or the appearance is spoilt.

Store *your bottles on their sides*, in a rack or bin if you can, and preferably in a temperature of about 55 deg. F. in a place which is free of vibration and not brightly lit.

The malo-lactic fermentation

OCCASIONALLY one comes across what is really a third fermentation, the malo-lactic fermentation. This occurs usually after the wine has been bottled, and often as much as a year or more after it was made. It is something which should be welcomed, when it does occur, for it imparts a very pleasant freshness to a white wine, and does reduce the acidity a little. For this last reason it is important to the winemakers of Austria, Germany and Switzerland, whose grapes tend to contain slightly more malic acid than those from sunnier regions, where the sun will have accounted for most of it before the wine is even made.

Malic acid is the acid to be found in apples, and what happens during the malo-lactic fermentation, as the name indicates, is that a bacterium to be found in all fresh wines (*b. gracile*) sets to work on the malic acid and converts it into lactic acid. This might not seem much of an improvement, but lactic acid is much *less* acid than malic, and the acidity of the wine is thus reduced, to say nothing of the very pleasant, clean, freshness with which this slight fermentation endows the wine.

Occasionally, one can bring about such a fermentation by agitating any yeast deposit and bringing the wine into the warm, but usually one can only be duly grateful if it occurs of its own accord

Sparkling wines

A MALO-LACTIC fermentation will give you a sparkling wine accidentally, as it were, but it is even more fun to make one deliberately. All you need is a suitable must—apples, pears, gooseberries, rhubarb are all ideal ingredients—a champagne yeast, and not too much sugar (about 2 ½ lbs. to 1 gallon, or an S.G. of 1080-1085, giving a wine of about 10 %). Ferment this to dryness, rack twice, mature for about six months, and then bottle in champagne bottles, adding to each 1 level teaspoon of sugar and a little fermenting champagne yeast. Cork well with a true cylindrical wine cork and wire it securely. Mature for at least three months. *Do not make this wine in ordinary wine bottles*; they will not stand up to the pressure involved.

If you wish to make an "instant" sparkling wine and are lucky enough to possess a Sparklet siphon you can do so in this way. First chill the wine in the refrigerator. Pour a bottle into the siphon, screw on the cap, insert a cartridge, *turn the siphon upside down*, and discharge the cartridge. By inverting the siphon the bottom of the tube inside it will be at the top and will be projecting above the surface of the wine. Turn the siphon up the right way again. Store it in a cold place if it is to be kept for a while before use. To serve the wine, do not squirt it out through the nozzle but unscrew the cap and pour out the wine as from a bottle. Hey presto!—Sparkling wine!

Winemaking summarised

- 1. Extract flavour.
- 2. Add sugar and yeast and ferment for up to 10 days in a bowl or crock, closely covered, at about 70 deg. F. (This may be simultaneous with (1)).
- 3. Strain off, put into fermentation jar or bottle; fit trap. Fill to bottom of neck. Temperature: about 60 deg. This fermentation will be much quieter and will proceed for some weeks.
- 4. Rack the cleared wine. Repeat this about two months later, and, usually, a third time after a further month. By then the wine should be quite stable, with no risk of burst bottles later on.
- 5. Bottle when the wine is about six months old. Store bottles, on their sides, preferably in a room of 55 deg. temperature or below.

Making a Typical Country Wine

ELDERFLOWER WINE

1

INGREDIENTS: 1 PINT OF ELDERFLOWERS, 1 GALLON WATER, 3½ LBS. WHITE SUGAR, ½ LB. RAISINS, THE JUICE OF 3 LEMONS, YEAST, YEAST NUTRIENT.

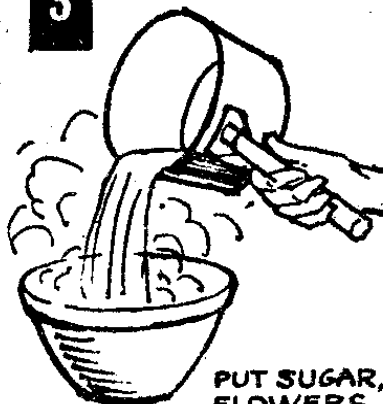


2



CUT OFF FLORETS AND PRESS DOWN LIGHTLY.

3



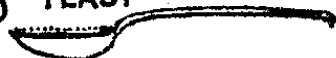
PUT SUGAR, FLOWERS, RAISINS, LEMON JUICE IN BOWL. POUR ON BOILING WATER. STIR. ALLOW TO COOL TO 70° F.

OR



¾ OZ. BAKER'S YEAST

OR ONE LEVEL TEASPOON GRANULATED YEAST—



— AND YEAST NUTRIENT!
(VERY IMPORTANT)

4

ADD WINE YEAST STARTER—



5

COVER CLOSELY WITH THICK CLOTH OR POLYTHENE SECURED BY ELASTIC. LEAVE FOR 4 OR 5 DAYS IN TEMPERATURE OF 65—70° FAHRENHEIT.

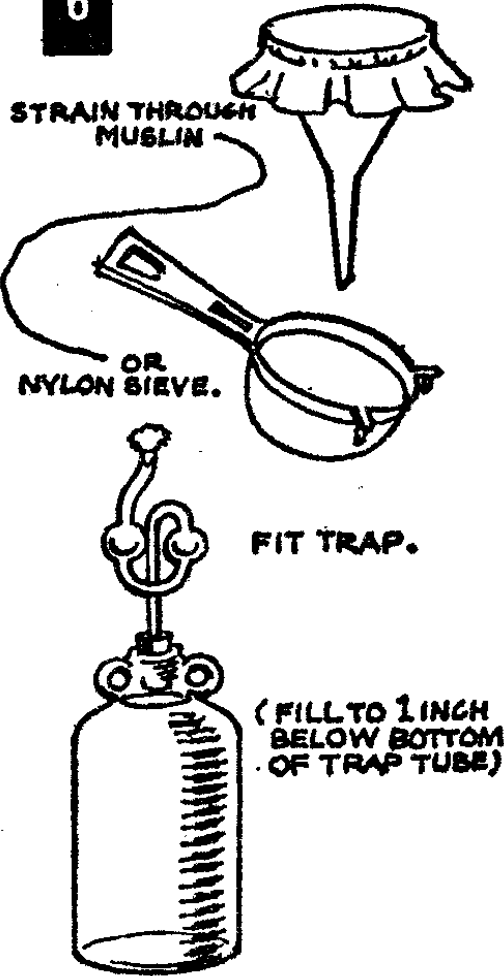


STIR DAILY!

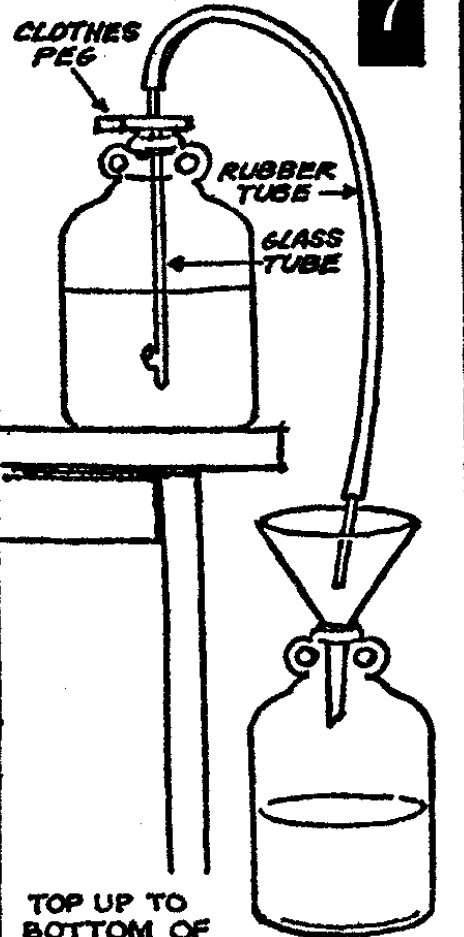


CONTINUED—

6



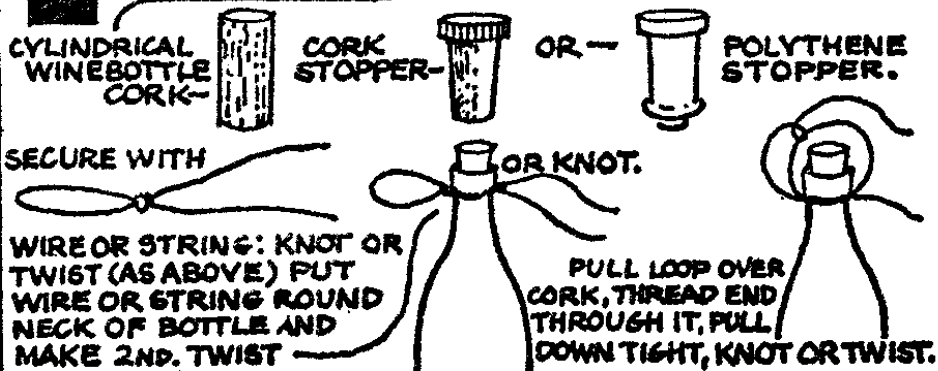
7



TOP UP TO BOTTOM OF NECK AS SOON AS POSSIBLE. WHEN WINE CLEARS, RACK INTO CLEAN STORAGE JAR. REFIT TRAP. REPEAT WHEN FERMENT CEASES, SYPHONING INTO BOTTLES (THIS ABOUT TWO MONTHS LATER), FOR TOPPING UP:- 3OZ. SUGAR IN ½ PINT WATER.

8

BOTTLE THE WINE AND CORK WITH



The hydrometer

IF the fermentation trap is the winemaker's best friend, it is certainly run a close second by the hydrometer. A hydrometer is by no means essential to the production of good wine, but it is a great help, particularly if one is aiming at consistent results.

Many winemakers seem to fight shy of it but in principle it is quite a simple device; by means of it one can:

- (a) determine how much sugar there is in any natural juice or must;
- (b) determine how much sugar to add to a juice to produce a wine of the desired strength;
- (c) keep a check on the progress of a ferment; and
- (d) calculate the strength of the finished wine.

The word hydrometer means "water-measurer," but in this instance it would be more accurate to call it a saccharometer, or "sugar measurer" for the basic purpose of the instrument is to discover how much sugar there is in the liquor. Fermentation, as has been explained, involves the conversion by yeast of sugar into alcohol and carbon dioxide. If, therefore, we can discover how much sugar is used up during the whole course of a ferment, we can calculate exactly how much alcohol has been produced, how strong the wine is.

The more sugar there is in a liquid, the thicker or denser it will become, or the greater its *gravity* will be: The better, too, it will support anything floating in it; the hydrometer makes use of this principle. To measure different gravities, we naturally need a scale of some sort, and an obvious and convenient standard from which to start is that of water. Water is therefore given the arbitrary gravity of 1.000, other liquids are compared specifically with this, and the resultant figures are said to be their *specific gravities*.

Thus liquids heavier than water (or, in our case, containing more sugar) may have specific gravities such as 1.050, 1.120 or 1.117 degrees. When talking of gravities, however, we omit the first "1" and the decimal point. Therefore the *specific* gravities quoted are exactly the same as *gravities* of 50, 120 and 117 respectively: Gravities are the same as degrees Gay Lussac (deg. G.L.).

For winemaking you will need hydrometers, or perhaps one hydrometer, covering the range 1.000 to 1.160, and it is often useful to be able to go several degrees below the 1.000.

If you wish, buy three, one 904 to 1.000, one 1.000 to 1.100 and one 1.100

to 1.200. You will then be equipped with hydrometers the gradations of which will be larger and more readable.

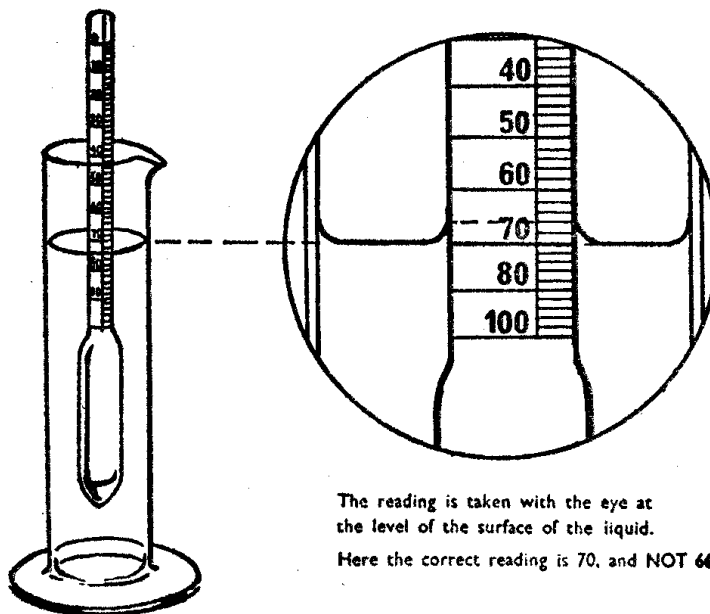
Messrs. W. A. E. Busby, however, produce one which is specially designed for the winemaker and which allows one to calculate the strength any wine has attained without reference to tables or graphs, which is most useful. This hydrometer has the specific gravity and the potential alcoholic strength scales side by side, and it costs no more than an ordinary hydrometer. Moreover, it covers the whole of the scale, 0.990 to 1.170, that the winemaker is likely to need, and is therefore ideal for our purpose. Semplex and Messrs. H. T. Ellaway also have specialised models.

A hydrometer is a glass tube (with a bulbous lower end) containing the scale, and it is weighted at the bottom so that it will float upright in a liquid. The reading is taken when the level of the main surface of the liquid would cut the scale.

The thinner the liquid (the less its gravity) the deeper the hydrometer will sink in it; the denser the liquid (the greater its gravity) the higher the hydrometer will float, and the more of the scale will protrude above the surface.

Therefore the scale of figures in the hydrometer is "upside down," the smallest being at the top and the largest at the bottom. In water, of course, the hydrometer will float with the 1.000 mark level with the surface; as you add sugar so the hydrometer will rise in the liquid. If, on the other hand, you add instead to the water a liquid *lighter* than water—alcohol, for instance—the hydrometer will sink below 1.000.

To use your hydrometer, pour some of the juice or syrup to be measured into a hydrometer jar, or any transparent container that gives sufficient depth and ample side clearance. Spin the hydrometer to get rid of any air bubbles clinging to its sides, which can seriously affect the reading. When the hydrometer is still, take the reading, with the eye at surface level.



The reading is taken with the eye at the level of the surface of the liquid. Here the correct reading is 70, and NOT 66

Note that hydrometers are designed to be read when the liquid is at 59 deg. F., and, strictly speaking, if it is at any other temperature, you should allow for it as shown in the table below. Omit the "decimal point" of the specific gravity and make the correction to the last of its four figure. Example: A hydrometer reading of 1140 at 86 deg. F. should be corrected to 1143.4.

Temperature in degrees F	Correction	Temperature in degrees F.	Correction
50	Subtract 0.6	77	Add 2
59	Correct	86	Add 3.4
68	Add 0.9	95	Add 5
		104	Add 6.8

When you have measured the specific gravity of your juice or liquor, you can tell from the table below firstly how much sugar per gallon it contains, and secondly, how much alcohol (in terms of the percentage of alcohol by volume): it is likely to produce, i.e. you can assess its potential alcoholic strength. This, remember, on the assumption that the wine ferments right out, and that all the sugar is used up.

There may be some obscuration, or unavoidable inaccuracy, at either end of the scale, caused by solids initially, and alcohol finally, but these figures give a practical working basis, and a deliberately conservative estimate of potential alcohol.

Let us assume that you wish to make a wine using a diluted fruit juice. Having extracted the fruit juice and diluted it with water as required, take the S.G. of it. Let us assume that you obtain a reading on the hydrometer of 1.040. This means, if you look at the table for a moment, that there is already 1 lb. 1 oz. of sugar present in the natural juice and that if you fermented it you would finish up with a dry wine of 5 % alcohol by volume. This would probably not keep (under 10 % it cannot be guaranteed).

So you now have to decide how strong a wine you wish to make. One can, of course, make a weak wine of, say, 5 %, but it would have to be drunk young, and most winemakers prefer to make table wines, which are usually of about 10-12 % alcohol, or stronger wines of up to 17 %. For wines of above the latter strength, say for drinking after a meal, one must resort to fortification.

Say you decide to make a dry wine of 16 % alcohol. The table shows you that this will require an initial S.G. of 1120, or a sugar content in the gallon of 3 lb. 2 oz. You already have 1 lb. 1 oz., so that you need to add 2 lbs. 1 oz. of sugar, and make the quantity up to 1 gallon with more juice of the same dilution.

S.G.	Potential % alcohol by Volume	Amount of sugar in the gallon lb. oz.		Amount of sugar added to the gallon lb. oz.		Vol. of one gallon with sugar added gal. fl. oz
1010	0.9	2		2 ½		1 1
1015	1.6	4		5		1 3
1020	2.3	7		8		1 5
1025	3.0	9		10		1 7
1030	3.7	12		13		1 8
1035	4.4	15		1 0		1 10
1040	5.1	1	1	1	2	1 11
1045	5.8	1	3	1	4	1 13
1050	6.5	1	5	1	7	1 14
1055	7.2	1	7	1	9	1 16
1060	7.8	1	9	1	11	1 17
1065	8.6	1	11	1	14	1 19
1070	9.2	1	13	2	1	1 20
1075	9.9	1	15	2	4	1 22
1080	10.6	2	1	2	6	1 23
1085	11.3	2	4	2	9	1 25
1090	12.0	2	6	2	12	1 27
1095	12.7	2	8	2	15	1 28
1100	13.4	2	10	3	2	1 30
1105	14.1	2	12	3	5	1 32
1110	14.9	2	14	3	8	1 33
1115	15.6	3	0	3	11	1 35
1120	16.3	3	2	3	14	1 37
1125	17.0	3	4	4	1	1 38
1130	17.7	3	6	4	4	1 40
1135	18.4	3	8	4	7	1 42

Alternatively, you can take 1 gallon of the juice and, in order to get the extra 80 degrees gravity required, add 2 lbs. 6 oz. sugar, in which case you will finish up with 1 gal. 1 pint 3 ozs., because of the extra bulk of the sugar. You can, of course, add all the sugar of the outset, as long, as you ensure that it is thoroughly dissolved, and, if you then check with your hydrometer, the S.G. should be in the region of 1.120. Add a tittle of the sugar at a

time to be on the safe side, testing as you go. A simple approximation is that 2 ¼ oz. sugar will usually raise the S.G. by 0.005 (5 degrees).

You then add your yeast nutrient and ferment in the usual manner.

As the ferment proceeds the S.G. of the liquor will drop, rapidly at first, and then more slowly, and you can gain a good idea of its progress by noting the rate of drop. As it nears the 1.000 mark it will be very slow indeed. It may reach the 1.000, and may even drop below because of the presence of alcohol, in which case congratulate yourself upon having produced a really dry wine!

To calculate the final strength of the wine, write down (omitting the decimal point) the S.G. at the start of the ferment (i.e. after the sugar was added). Subtract from it the final S.G., and divide the answer by 7.36; that is the percentage of alcohol by volume in your wine.

Multiply that by 7/4ths and it will give you the strength as proof spirit.

Example: Starting S.G.....1125

Final S.G.... 1002

Drop 123

$123 \div 7.36 = 16.7 \%$ alcohol by vol.

Multiplied by 7/4ths = 29.2 deg. proof.

It is always good practice in winemaking to add the sugar by stages, but winemakers are often puzzled as to how they can do this, yet still use their hydrometer to obtain the information they want as to their wine's strength. It is easy enough if one bears in mind all the time that the principal factor with which one is concerned in calculating the final strength of a wine is the *total drop* in specific gravity. The sugar can therefore well be added a few ounces at a time *as long as you keep a record of the number of degrees drop between successive additions*. Then add up the various drops, and this is the figure to be divided by 7.36 in the usual way. This will in normal cases give an approximate result which will be accurate enough for the average winemaker, but where large quantities of syrup are added it can be seriously adrift because it takes no account of the volumes involved. When you have worked out what percentage of alcohol you have obtained by the first drop, you then proceed to add sugar or syrup. This produces more alcohol, but its bulk also dilutes the alcohol you have already produced, so you must modify the calculation already done. Similarly the drop from the second lot of sugar must be modified, and so on.

Suppose you start with an S.G. of 1100 and, after three or four days, strain into a one-gallon jar and obtain 5 pints of liquid. Some time subsequently the S.G. is found to be 1000, i.e.. a drop of 100. Since a gallon is required you "top up" these 5 pints, bringing them to 7 ½ pints with an S.G. of 1010. After another period the S.G. drops again to 1005, so once more you top up with syrup or sugar to obtain a full 8 pints with an S.G. of 1010. The S.G. finally drops to 1005.

Using the rough-and-ready calculation above gives a total drop of $100 + 5 + 5 = 110$. This one divides by 7.36, giving a result of 15 % alcohol by volume.

But the correct calculation would be:—

First drop: 100.

This must be modified into

$$\begin{array}{l} 5 \text{ (the number of pima before topping up)} \\ 100 \times \frac{5}{7 \frac{1}{2}} \text{ (the number of pints after topping up)} \\ = 100 \times \frac{2}{3} = 66,6 \end{array}$$

Second drop: 5.

$$\text{Added to modified first drop} = 66.6 + 5 = 71.6$$

This again must be modified due to the second addition of sugar, as follows:

$$71.6 \times \frac{7 \frac{1}{2}}{8} = 67$$

Final drop: 5.

To this 67 is added the final drop of 5, giving a total effective drop of $67 + 5 = 72$. This represents just under 10 % alcohol by volume, as against 15 % by the crude method.

Admittedly this is an exaggerated case and does not illustrate good winemaking practice, but it does illustrate the mathematical point.

A good general rule is that a really dry wine will often need a starting specific gravity of about 1.085, a medium sweet wine one of about 1.100, and a really sweet wine one of up to 1.125.

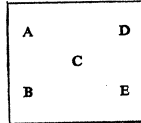
Always remember that it is better to use too little sugar initially than too much; a dry wine can always be sweetened; an oversweet wine is hard to redeem. Make your wines dry, and sweeten them to taste when finished.

Another useful point to note is that if you wish to *reduce* the gravity of a liquid, it can be done by dilution. The addition of an equal quantity of water, for instance, will reduce the gravity by half.

PEARSON SQUARE

SOMETIMES you will want to fortify a wine (raise its alcoholic content by adding spirit) and, since spirit is expensive, you will need to calculate exactly how much to add to achieve the desired result. Do so by means of the Pearson Square (or St. Andrew's Cross) but note that all measures must be of the same sort, i.e. degrees Proof or % alcohol by volume; do not mix them.

Here is the Pearson Square:



A = alcohol content of spirit to be added

B = present alcohol content of wine

C = desired alcohol content

D = difference between B and C

E = difference between C and A

The proportion D to E is the proportion of spirit to wine to achieve the desired strength.

If you are blending two wines of known strength and wish to know the final strength, the formula is:—

$$\frac{(A \times B) + (C \times D)}{A + C} \quad \text{where:}$$

A = No. of parts of 1st wine

B = Strength of 1st wine

C = No. of parts of 2nd wine

D = Strength of 2nd wine

Thus, if you blend two parts of a wine of 15 % with three parts of a wine of 10 % the result will be:

$$\frac{(2 \times 15) + (3 \times 10)}{2 + 3} = \frac{60}{5} = 12$$

or a wine of 12 %

The quickest way

I MUST not forget to say a word about the grape juice concentrates which are now on the market and which are a real boon to the winemaker who is anxious to see results quickly, yet at a reasonable price. Grape juice concentrate, of course, will make "true wine," and at a price far below that of wine bought in a shop, and by using it one can avoid all the "cookery" aspect of making wine at home.

Consequently many people are by-passing the flavour extraction part of the hobby nowadays and making wine from these concentrated grape juices—red or white—which have merely to be diluted as required, and fermented; excellent wine can be produced in this way at a most reasonable price. It has the advantage, too, that it is ready for drinking much more speedily than the average country wine, so that by using this system one can acquire cheaply the nucleus of a cellar whilst waiting for one's country wines to mature.

One of the best concentrates on the market has a specific gravity of 1.325 (see: Using Your Hydrometer). Recipes for its use involve adding 2, 2 $\frac{1}{4}$, 2 $\frac{1}{2}$, 2 $\frac{3}{4}$ or 3 parts of water to one part of concentrate, plus the juice of one lemon per gallon to supply the requisite acid, and fermenting. For even greater dilutions one adds some compensatory sugar, the biggest dilution recommended being 1 gallon of grape juice to 4 gallons of water and 8 lbs. of sugar (plus 1 oz. Tartaric Acid). Yeast culture is supplied with the concentrate.

This works out more expensive than most country wines, but with an average dilution the wine will still cost only 2/- a pint.

Southern Vinyards Ltd., of Hove, have evolved and simplified a complete system of this sort which is set out in the handbook they issue with their grape juice, and it is certainly "winemaking made easy." By using it one can have wine finished and drinkable in only a few weeks, and it is at first hard to believe that such delicious wine can be produced with such simplicity and speed.

The cardinal factor in their system is the use of thorough filtering and racking (see pp. 29-33) which clears the wine of dead yeast and oxygenates it so that it matures more rapidly. The use of a high-grade filter-bag, or jelly-bag, is recommended.

A winemaking club, buying the concentrate in bulk, can obtain it for 40/- per gallon, and members can then make wine for as little as 1/3d. to 1/4d. per pint. The firm has in addition to the ordinary red and white special concentrates for Italian and French Vermouth and port-type wines.

Herbs and flavourings

A simple and quick method of preparing herb wines of many varieties is by the use of a standard basic recipe, such as Barley Wine, with the addition of the necessary herbs or the herb flavour extracted into the water for making the wine by steeping the dried herbs or boiling the fresh herbs.

Particular attention should be paid to obtaining the maximum extraction of the flavours and qualities of the herbs. Two ounces of dried herb usually suffice (a standard

proprietary pack costing a few shillings will meet your requirements) and certain herbs with strong aromatic qualities may be suspended in a linen bag for a few days in the liquor made from a standard basic recipe. Check from time to time until the strength of flavour is to your liking. An ordinary barley wine is an excellent base; so is a tea wine.

The herbs powdered or bruised, can be either:

- (a) Boiled or soaked in the gallon of water and strained before adding to the main recipe.
- (b) Be added powdered or bruised to the must; or
- (c) Suspended in a linen bag in the fermenting standard basic must.

Another new development is the introduction of flavourings, which can be used to produce from any *finished* wine several quite different aperitifs, and French or Italian Vermouth. Flavourings are also obtainable to produce liqueurs at home—Cherry Brandy, Curacao, Green and Yellow Convent, Kirsch, Eau-de-Vie, Juniper Gin, etc., etc. With liqueurs, of course, some fortification with brandy or vodka is to be recommended, to obtain the strength required (liqueurs are really sweetened spirits). Some economy can be effected by using a proportion of strong wine in place of a third of the amount of spirit recommended by the suppliers.

"Ferments" have a wide range of most effective flavourings which will enable you to make some most interesting experiments in this line. Grey Owl Laboratories also supply some of the more popular ones, including a most interesting "sherry" flavour.

In quantity

SOONER or later, most winemakers are not content to make just one gallon of their favourite wines; their thoughts turn to the idea of making them in larger quantities, say 4 ½, 5, or 6 gallons, or even more.

Many winemakers make 20 or 30 gallons of their favourite wine each year and this "bulk" method has much to commend it. Many winemakers are nervous of attempting, say, five gallons of one wine, but it is a fact that five gallons is much less liable to "go wrong" than one, if ordinary precautions are observed.

And consider the advantages . . . wine seems to ferment better in bulk (in small quantities it is like a plant in too small a pot!); the large bulk means that it is less subject to violent temperature fluctuations; it is very little more trouble to make five gallons than to make one (and it lasts nearly twice as long!). Certainly, if you have a good stock of wine, bolstered by one or two wines made in quantity, there is less temptation to drink wine which is immature, and you can still do your experimental single gallons.

By making a few wines in bulk you can have as much wine to drink as you wish, every day . . . a satisfying thought.

The way to set about it is to choose one or two ingredients which are readily available, or very cheap, and which can be retied upon to give you a wine of reasonable quality for your *vin ordinaire*, both red and white.

I personally have settled for apple for the white (from which a whole range of wines can be produced), and dried bilberry for the red.

The apple I make on the principle of 12 lbs. of mixed apples to 1 gallon of water, which gives 1 ½ gallons of "juice." Twelve pounds of apples fill a plastic bucket (an easy measure) and are run through a Bryants crusher, the resultant "purée" falling into an 11-gallon dustbin. Then a gallon of cold water is added. Then another 12 lbs. of apples, another gallon of water, and so on. When I have enough a vigorous yeast is added and well stirred in. Fermentation on the pulp goes on for a week, the "cap" of fruit which rises to the top being broken up and well stirred each day.

Then the must is pressed and the juice runs off through a fine sieve into 1-gallon jars for measuring purposes. For each jar 2 ½ lbs. of sugar (for a dry wine) or 3 lbs. (for a sweet) are put into a large dustbin, and all the one-gallon jars emptied on to it. Then one stirs well to dissolve all the sugar before pouring all the must into a cask or carboy for the main fermentation—and the wine is made.

Apples are usually readily obtainable free in our area and we use a couple of hundredweight each year.

Dried bilberries, on the other hand, may sound expensive if one uses them at the rate usually recommended, 1 lb. to 1 gallon, but this is, if anything, too much. In practice, by successive washings, one can get no less than 4 gallons of wine off 1 lb. of dried bilberries, the first gallon being of heavy body and the succeeding mashes each producing an increasingly light wine, the last being only a pale rosy. These four grades of wine enable one to blend to produce a wine of exactly the desired body and colour.

I now use 5 lbs. of dried bilberries to 8 gallons of boiling water, 20 lbs. of sugar, and five *level* teaspoons of citric acid. The water is boiled in an electric boiler and run straight on to the ingredients. When it cools, add the yeast, and ferment for a week. Strain off the fruit and put on one side; run the liquor into fermenting casks, but put the last half-gallon aside in a glass jar stoppered with cotton-wool.

Return the fruit to the fermenting tun, run in five gallons of boiling water and a further 12 ½ lbs. of sugar and three level teaspoons of citric acid. When this has cooled pour in the half-gallon from the previous must as a starter and it will almost explode into fermentation. The second batch is also fermented for a week before straining off the pulp and there will *still* be colour in the skins of the bilberries and goodness in the fruit to make a third batch if desired. This is an easily made winter wine and to my mind the colour and flavour of the bilberry is infinitely to be preferred to the more commonly made elderberry.

Utensils for making wines in quantity are a gas or electric boiler holding, say 5 gallons. A "Baby Burco" I find ideal; it is even marked out in gallons internally. Such a boiler can often be picked up second-hand for next to nothing and is easily cleaned. A large plastic dustbin (11 gallon size) is useful, so is a fruit crusher to avoid having to cut up large quantities of fruit. A press you can do without at a pinch, and use a pectin-destroying enzyme to break down the fruit instead. A wooden paddle is useful for stirring, so is a plonker for pushing down the cap of fruit during mashing. Both these are easily made from broom handles and squares of oak.

Containers for fermenting and storage? Carboys (fragile, but all right if you keep them in their rather untidy cages), stoneware "barrels" (old-fashioned and heavy), plastic

bags in cardboard outers (suitable but not very longlasting) and rigid polystyrene 5-gallon cubes. Of the last, those in which wines have been sold are usually safe, but others can confer horrible flavours upon your wine, even when they smell sweet, and are best treated with suspicion.

CASKS

BEST containers of all to my mind are casks; they are safe, easy to handle, long-lasting, and do impart "character" to a wine. Optimum sizes for home use are probably the 4 ½ gallon and 6 gallon sizes, a 3 gallon being rather too small and a 9-gallon heavy to move. Paradoxically, the larger a cask is, the cheaper it is proportionately.

A few golden rules: Avoid like the plague casks which smell of vinegar. Keep your cask on a stand or stillage, so that the centre bottom stave is not supporting all the weight; **always keep casks FULL** (most important), topping them up regularly; refill a cask as soon as it is emptied; avoid the use of taps (which always drip and leak) and siphon wine out through the bung-hole. Use always oak casks, wine casks if possible (beer "barrels" are thicker). Siphon wine into 1 gallon jars or bottles for drinking and refill cask. Normally keep separate casks for white and red wines.

TO PREPARE NEW CASKS: Fill with clean water for 2 or 3 days, then with hot soda solution (4 oz. soda in 1 gallon of boiling water). Rinse with sulphite solution (¼ oz. potassium metabisulphite and ¼ oz. citric acid in 1 gallon water) and then with water.

TO STERILISE SECOND-HAND CASKS: Fill with solution of hypochlorite (4 oz. of domestic bleach in 10 gallons of water). Leave 24 hours. Or half-fill with hot soda solution as above. Roll, empty when cool. In either case then rinse (i) with water, (ii) with sulphite solution, and (iii) with water. (To remove surface deposit insert 3 foot length of heavy chain and roll cask.)

MUSTY-SMELLING CASKS: Use ⅓ oz. of calcium chloride, ⅔ oz. sulphuric acid and 5 pints of boiling water. Leave 2 hours. Rinse with 10 % solution of sodium hydroxide, then thoroughly with water.

STAGNANT-SMELLING CASKS: Wash with 2 gallons of boiling water and 1 oz. of calcium chloride. Rinse with cold water.

STORAGE: Wash thoroughly, removing all surface deposit with chain, sterilise with sulphite solution. Some of this (say ½ gallon for a 4 ½ or 6 gallon cask) should be left in the bunged-up cask. Store cask on end; invert at intervals; renew solution every two or three months.

Chamber of horrors !

—FAULTS AND REMEDIES

WHILST something must be said about faults and diseases of wine, it should be emphasised at once that several of these disasters which can befall your wines are rarely encountered. Observance of commonsense precautions will ensure that your wines are sound, and you may never need to refer to these particular pages. I hope you do not!—but "just in case" there are listed here some of the disasters most probable to be encountered.

ACETIFICATION . . . or formation of vinegar. This will normally only occur in conditions of extremely bad storage, and in the presence of air. Therefore keep your bottles full. If it is noticed in the early stages—there is a very slight smell of vinegar and an acid taste—it can probably be halted by adding one Campden tablet per gallon, waiting 24 hours, and then introducing a vigorously fermenting fresh yeast. In the later stages the smell of vinegar will be pronounced, and indeed what you now have is wine vinegar. Remedy: Use it for cooking or pour it down the drain!

Sometimes a wine will smell vinegary but not taste acid, and this is the effect of ethylacetate, produced by wild yeasts present on the fruit. Prevent. this by adding one Campden tablet per gallon 24 hours before your chosen yeast.

OVER-SWEETNESS. The bugbear of the beginner. It can be avoided by not using too much sugar initially and always using a nutrient (see pp. 21 and 22). Remedy: Blend the wine with one from similar ingredients which is over-dry, or with dry rhubarb wine, which will take up its flavour. See also "Low Alcohol Content."

LOW ALCOHOL CONTENT. Usually allied to oversweetness. If it is the result of a fermentation having ceased prematurely, adding fresh yeast direct will rarely succeed, since it will be inhibited by the alcohol present. Remedy: Make up half-a-pint of fresh juice with 1 oz. sugar and some fresh yeast and nutrient as a "starter." When it is fermenting vigorously add an equal quantity of the low-alcohol wine. When all is fermenting well, again add an equal quantity of the wine, and continue the process until the whole is fermenting once more. Adding nutrient to the bulk and keeping in a temperature of 70 deg. F. will help.

OVER-ACIDITY. A slight over-acidity can often be corrected by stirring up any yeast deposit and causing a malo-lactic ferment. With a strong wine slight dilution will help to reduce acidity, and with a weak, dry one the overacidity can often be masked (but not *corrected*) by the addition of a little sugar. BEST Remedy: Add glycerine, at the rate of 5 %, or 1 pint to 2 ½ galls. A third of an ounce of precipitated chalk to 1 gallon (preferably added before fermentation) will also correct over-acidity. Added afterwards it may leave a taste. (See Rhubarb Wine recipe.)

MEDICINAL FLAVOUR. The result of insufficient acid in the must. If the fault is but slight the addition of a little citric acid to the finished wine may help, but if the flavour is pronounced little can be done.

MUSTY FLAVOUR. Some writers describe this as a "mousey" taste, but I have never tasted a mouse! Actually this is probably a corruption of the French wine term "moisi," or mouldy. Caused by wine standing overlong on dead yeast, particularly baker's yeast. Prevent this fault occurring by methodical attention to racking. Once a *firm* yeast deposit has formed—rack! Remedy: See "Taints and Smells."

TAINTS AND SMELLS. Not always readily identifiable; they can be caused by damaged fruit, bacterial action, tainted plastic containers, bad casks, or proximity of wine to strong smells (onions, paraffin, etc.). They can occasionally be removed by charcoal treatment but it is necessary to experiment to discover how much charcoal is needed. Add a small quantity to a measured quantity of wine, stir two or three times during first 24 hours. Allow to settle. Leave a further day, then rack, and filter to remove particles of charcoal. Some of the flavour and colour may also be removed. If dose is satisfactory treat bulk of wine in the same way.

METALLIC FLAVOUR. Sometimes encountered when wines have been made with tinned fruit, juice, or concentrate, or when ferrous metals have been allowed prolonged contact with the wine. Remedy: Avoid "unsafe" metals.

FAILURE TO CLEAR. Usually the result of over boiling ingredients (see PECTIN HAZES) or of hastening unduly the initial straining, which should be both slow and thorough. Remedy: Move wine into cold place for two or three weeks and see if it clears. If not, try filtering through asbestos pulp (see p. 33) or using a good wine finings, such as Serena. If all of these fail, try pouring into the top quarter of the bottle some clear wine of the same variety. This will often carry down the suspended solids. Isinglass or gelatine as finings are tricky, and not recommended for the beginner.

PECTIN HAZES. Many hazes in wines are due to gelatinous solutions formed by pectins in fruits, and are aggravated by initial boiling. They can be avoided by using a pectin-destroying enzyme such as Pektolase, Pectozyme, Pectinol, etc. To improve the yield of juice when making fruit wines the enzyme should be added to the pulp of the fruit, using $\frac{1}{4}$ oz. to each 8 lb. pulp ($\frac{1}{4}$ oz. each 5 lb. blackcurrants). If the juice is allowed to stand at room temperature overnight or longer the enzyme will act satisfactorily, and the juice will clear.

A check that any haze is caused by pectin can be made by adding 3 or 4 fluid ounces of methylated spirit to a fluid ounce of wine. If jelly-like clots or strings are formed, then the haze can be regarded as pectin and the remaining wine treated with Pectozyme. For each gallon of wine $\frac{1}{2}$ oz. of Pectozyme should be added to $\frac{1}{2}$ pint of wine and the wine kept warm (70-80 deg. F.) for four hours, stirring at intervals. Strain

through muslin and add to the bulk of the wine. Leave the wine at 60-70 deg. F. for several days. The pectin haze should clear but if it does not use asbestos filtering medium.

STARCH HAZES. Treat with another enzymatic preparation, Amylozyme. Mix ½ oz. Amylozyme 100 with 2 to 3 oz. water and leave for two hours, stirring or shaking, if in a bottle, at intervals. Meanwhile put the wine in a preserving pan and heat to 170 degrees F., and hold this for 20 minutes. Cool the wine to 110 degrees F. and stir in the diluted enzyme. In about one hour the reaction will be complete and the temperature of the wine should again be raised to 170 degrees F. and held for ten minutes. After cooling the haze will settle out and the wine should be racked.

COLOURED HAZES. Usually the result of metallic contamination, copper, zinc and iron being the usual causes. Containers or implements of these metals should be rigorously avoided for fermentation purposes or white, dark, purplish or brown hazes may appear, often after a sudden drop in temperature, which renders the solutes less soluble. Remedy: For iron or copper hazes add a little citric acid; this often works.

DARKENING—is most commonly caused by *oxidation*. If a glassful of finished wine darkens after 24 hours exposure to the air it is not fully stable. If the cause is enzymatic, darkening can be prevented by adding 2 Campden tablets per gallon as a stabiliser. Darkening may also be due to the presence of iron, which can be corrected by the addition of a little citric acid (½ oz. to 5 gals.).

TOO MUCH COLOUR. If you wish to decolour a white wine use clean eggshells which have been immersed in boiling water and crushed, or the charcoal treatment under "Taints and Smells."

HARSH FLAVOUR. Add glycerine to taste, or treat as for "Darkening," or use gelatine firings. (See "Clearing" (p. 31).)

FILTER-PAD FLAVOUR. Caused by failing to wash the filter pulp with water or wine before filtration. The first wineglassful of wine through the filter should always be thrown away.

FLATNESS OR INSIPIDITY. The result of insufficient tannin in the wine. Remedy: Add grape tannin or a small quantity of strong tea (up to 1 tablespoon per gallon).

THINNESS, or lack of "body." Due to using insufficient fruit as the basis of the wine. Naturally thin wines, such as plum, can be improved by adding up to 1 lb. of wheat, barley or maize to the gallon when making. Thinness in a finished wine can only be overcome by judicious blending with one of considerably more body. Marrow wine and robust grain wines are excellent for this purpose, since they usually have good body. Regularly using a Campden tablet per gallon in the must 24 hours before adding the yeast will also improve the wine by putting into it a little glycerine.

FLOWERS OF WINE. Powdery, whitish flecks appear on the surface of the wine and if left unchallenged will rapidly increase and will turn your wine first to carbon dioxide and then to water. It is caused by an organism like yeast, mycoderma, an aerobic bacterium, and is usually the result of admitting too much air to the fermenting vessel. Remedy: Remove as much of the surface flecks as possible, filter through unmedicated cotton-wool or filter papers, introduce some vigorous fresh yeast, and fill the fermenting bottle as full as possible to exclude all air. If a substantial film has been formed there is no remedy.

ROPINESS. The wine takes on a repellent, oily appearance and pours very slowly, like treacle, but the taste is unaffected. The wine will look rather like the raw white of an egg and in it will appear rope-like coils—hence the name. This is the work of the lactic acid bacterium. Remedy: Whip the wine into a froth in a polythene bucket, add two crushed Campder tablets per gallon, and filter through asbestos pulp or filter paper.

Do

- Keep all your equipment spotlessly clean.
- Keep your first ferment closely covered.
- Keep air away from the secondary fermentation.
- Always use fermentation traps.
- Keep all bottles full to within $\frac{3}{4}$ in. of cork.
- Strain liquor off must slowly and thoroughly.
- Make wines too dry rather than too sweet: sugar them later.
- Use yeast nutrient regularly, and reliable yeast.
- Add sugar by stages. Keep detailed records.
- Rack at least once, and preferably twice or thrice.
- Taste the wine you are making, at intervals.
- Always use new corks or stoppers, and boil old ones.
- Keep red wines in dark bottles, or they will lose their colour.

Don't

- Sell or distil your wine.
- Allow a single vinegar fly access to your wine at any stage.
- Use any metal vessel if the wine will be long in contact with it.
- Use any tools or containers of resinous wood.
- Omit to stir a must twice daily.
- Use too much sugar initially.
- Try to speed a fermentation by too high a temperature.
- Be impatient; making wine takes time.
- Let your wine stand on dead yeast or sediment.

Filter unnecessarily or too soon; most wines will clear of their own accord.
Put wine in unsterilised bottles or jars.
Bottle your wine whilst it is still fermenting.
Use screw-stoppered bottles.
Drink too much!

Grow your own grapes

"BUT surely you can't ripen grapes out of doors in this country?" This, with variations, is the common incredulous reaction one gets each time the subject of outdoor vine-growing is mentioned to the average Englishman.

Vines, so the popular belief runs, are delicate, temperamental things, hard to propagate, complicated to prune, and suitable really only for greenhouse culture, and even then only by an expert viticulturist. And even if one succeeds in growing some vines, declare the pessimists, in our climate it will be impossible to ripen the crop.

These fallacies are widely believed, even amongst amateur winemakers, yet are the opposite of the truth.

Vines can be grown successfully in the southern half of England, and in a reasonably good summer the grapes can be ripened (a really wet one admittedly produces problems). And when we get one of our really hot summers, such as we enjoyed in 1959, the owner of a vine is a happy man indeed.

Vines were grown in southern Britain by the Romans (so this is no new idea!) and today there are many small vineyards where experiments are once more being made in order to accumulate indigenous experience again. Sir Guy Salisbury Jones, indeed, has established a large vineyard at Hambledon in Hampshire, which is well worth a visit, and Mr. and Mrs. Gore-Brown have done likewise at Beaulieu.

The truth is that the growing and training of vines is so straightforward that *all* who are interested in winemaking should try it; vines occupy little space, they can be planted at the back of flower borders, along fences, beside paths, or on a south-facing wall. They make ideal screens, and they interfere little with flower or salad crops, for they are deep and not surface-rooting. They are as easy to grow as, say, raspberries or blackcurrants. If they are grown espalier fashion along a wire fence it is the work of a moment to throw mats or polythene sheeting over them to protect them from frost, or netting to prevent depredations by birds when the grapes ripen.

The all-important point is to make sure, when you choose your vines, that you select only the earliest cropping varieties.

Just as the Englishman classes his potatoes as "First Earlies," "Second Earlies," "Maincrop" and so on, according to when the crop is ready, so the Frenchman talks of his vines as "Première Epoque," "deuxième Epoque" or "Troisième Epoque" (First, Second or Third Epoch). Thus early ripeners are all of the "lère époque," and very early ones the "lère époque précoce." These will all ripen well in our English climate, whereas 2nd or 3rd Epoch vines will not. Black Hamburg, for instance, which is perhaps the most generally known grape in this country, is only so because it was once widely cultivated in greenhouses, but it is unsuitable for outdoor use here, being of the Second Epoch.

So make sure you choose an early ripening variety, and if in any doubt consult your nurseryman. Vine growers who will be able to help you are Messrs. M. S. E. Lytle, of Formby, Lancs. (who will send you a useful 16 page booklet, "Successful Growing of Grape Vines," for 6d.), Mr. Barrington-Brock, of the Viticultural Research Station, Oxted, Surrey, and Mr. Edward Hyams, of Kent. Many nurserymen can also supply the more popular varieties.

It is not the intention to discuss here viticulture in detail, for many excellent technical books are available on the subject, but only to give, as it were, a few pointers to the complete novice.

Firstly, if you are planting many vines, do not have all the same variety. Obtaining satisfaction from your vines will be a long-term project, and it is best to choose several different vines and grow them experimentally rather than make a large outlay on one variety which may prove disappointing. Nor need this be expensive, for, cuttings from friends' vines can easily be rooted. Then select the ones that do best in your soil.

Secondly, remember that vines fall into two main categories, producing wine grapes or dessert grapes, and that in each case black and white grapes of varying sweetness are obtainable.

So decide what type of grape you want, and choose some early burgeoning varieties to meet your need.

HYBRIDS

One point to note is that the beginner is well advised to plump for "hybrid" vines (Continental vines crossed with American) which are vigorous, prolific, early ripening and resistant to lime and disease. The American root stock resists the vine louse (or Phylloxera) which is the scourge of the *vitis vinifera*, or Continental varieties. The phylloxera kills off the *vinifera* by destroying the root system, but the American *vitis rupestris* stands up to it satisfactorily.

It is as well, too, to give your vine grower as much accurate information as you can about your soil, so that he can the better advise you.

You can either grow vines from cuttings or purchase them when 1-2 years old, and plant them in spring or autumn.

PLANTING

If you have them in a row or rows in the garden, growing on a waist-high fence (which is a practical system because they are then much more controllable and more easily protected) they should be at least 2 ft. 6 ins. apart, preferably more, and there should be 3 ft. between rows.

When the vine arrives, if it has not been pruned, cut it down to the lowest two buds on each branch, even if it is 10 ft. high this *must* be done, or it will never grow grapes of any consequence.

The reason for this drastic pruning, and for those of subsequent years, is that for three years at least one should concentrate about building up a really strong and extensive root system, and not top growth, otherwise the vine can never be really strong and

prolific. Therefore the growth above ground must be curtailed so that all the strength of the plant will go into developing its roots. In the fourth year or so it is allowed to fruit. So vine-growing, as you can see, is rather a long-term affair. Luckily winemakers are used to exercising patience!

Choose a sunny position for your vine, facing south if possible, dig a hole big enough to allow the roots ample room, and place the vine in position Space out the roots well, and cover with light soil mixed with silver sand and old compost until the hole is filled. Be sure to tread well in.

As with raspberries, the fruit of the vine is borne on the wood of the previous year, so if a vine is spring planted you could obtain your first grapes in 18 months (though they will be scanty and it is better not to let the vine fruit). Certainly no more than two to three bunches should be allowed to form, or the strength of the vine will be sapped, but from then on a few more may be allowed each year until, in about four years, the vine will be cropping well.

As the fruit begins to ripen keep a close eye on it, and cover it either with netting or with high cloches or the birds will have it first. When the grapes are thoroughly ripe they are pressed, yeast is added, and they are fermented in the usual way (see under "Grape Wine").

FROM CUTTINGS

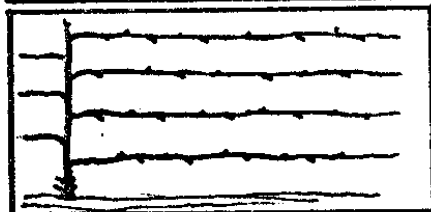
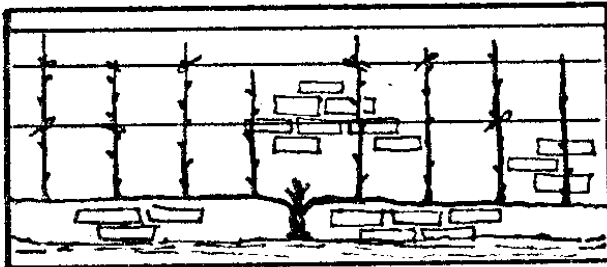
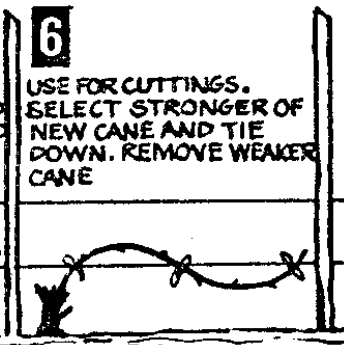
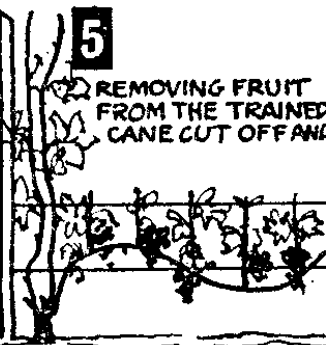
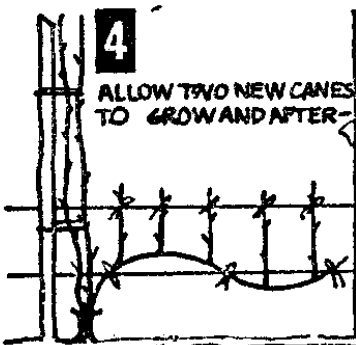
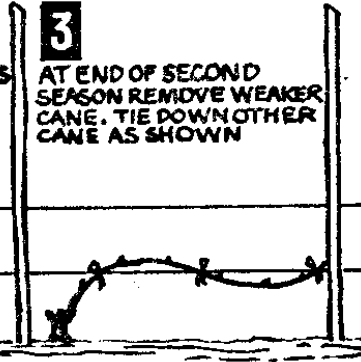
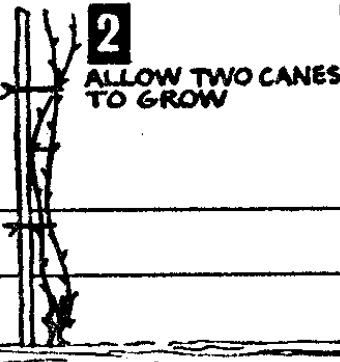
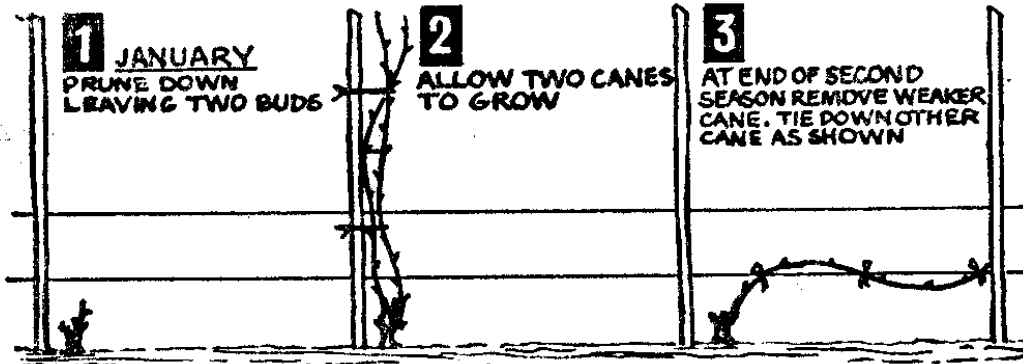
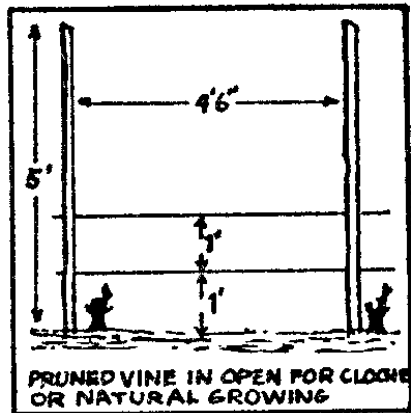
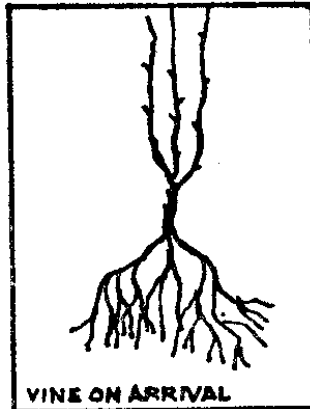
If growing from cuttings, take your cuttings in the autumn. You need pieces of stem about 9 inches long, with a pair of buds at either end. Bury these a foot or so deep, laying them horizontally, so that they will survive the winter, and in late March or early April dig them up, and set them just like any other cutting, with the topmost two buds at ground level. Sift some light soil in a little mound over the cutting (about 11 in. high will do) to prevent the wind from drying it out, or frost damage, mark the spot with a cane, and await results.

There are many ways of pruning, and training vines, and the illustration by George Hodgson shows some suggested ones.

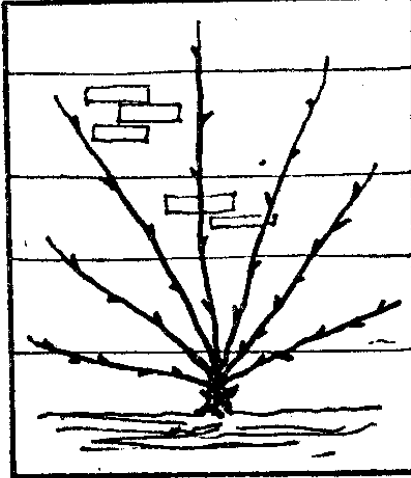
Hybrid varieties of Wine Grape to try:

White grapes: Seibel 5279, Seyve Villard 5/276, Seibel 5409, Baco 2-16, Couderc 272-60, Chenin Blanc, Excelsior.

Red grapes: Seibel 5455, Seibel 13053, Seibel 2010, Seibel 8239, Seyve Villard 5/247, Oberlin 595, Baco No. 1



THREE
METHODS
OF
WALL
TRAINING



Winemaking Circles

WINEMAKING as an "organised" hobby is a comparatively new thing, although wines have been made in these islands for centuries in the cottages of country folk. It was only in 1953 that the first "Winemakers' Circle" was formed at Andover, closely followed—quite independently and spontaneously—by others at Welwyn Garden City and Cheltenham.

In the few years since, however, the idea has spread with astounding speed, and by 1968 there were well over 400 such clubs, scattered the length and breadth of the British Isles, and even in Canada; most of them following the original idea and calling themselves "Circles," some of them adopting the style of "Guilds," and yet others calling themselves "Societies" or "Associations." The publication of the monthly magazine, *The Amateur Winemaker*, from 1958 onwards has done much to consolidate the movement and publicise the aims of the Circles.

All of them have the same fundamental objective—the improvement of the standard of country wines—and all of them notably have the same characteristic, a striking friendliness and informality. The Circles are real centres of friendship and good fellowship, as well as a means of instruction.

By buying apparatus and sometimes ingredients in bulk they are able to obtain discounts from many firms and thus can offer their members these goods at favourable rates.

Practical winemaking is learnt pleasantly and in a sociable atmosphere by means of talks, demonstrations, quizzes, and competitions, and nowadays there are also inter-club contests. Members learn not only how to make wine, but how to exhibit and judge it.

On the social side, there are usually Christmas or New Year parties, dinners, dances, outings to breweries, sugar refineries, glassworks, potteries, wine lodges, vineyards, and other places of interest to the winemaker.

All in all, members find that joining a Winemakers' Circle is definitely worth while, and anyone interested in the subject would be well advised to contact the nearest one, if they are lucky enough to have one in their area.

The list is now too long to be reproduced here, but if you wish to know your nearest Circle drop a postcard to: The Editor, *The Amateur Winemaker*, North Croye, The Avenue, Andover, Hants, who can also advise on how to set about starting a Circle if none exists in your locality.

The first National Conference and Show—quite a small affair—was held at Andover in 1959, and others have followed at Bournemouth, Brighton, Harrow, Cheltenham, Clacton, Harrogate, Bognor and Torquay, and "the National" has now developed into a mammoth competitive wine show which can attract as many as 3,000 entries. It is allied to a week-end of lectures, discussions and merrymaking which is the big event of the year for keen winemakers and visitors even come from abroad—Germany, Denmark and Canada, for instance.

The show has now grown into the National Association of Amateur Winemakers, which any Circle can join upon payment of a £2/2/- annual subscription. Individuals can

join for an annual subscription of £1/1/-. The general secretary is Wing Cdr. R. W. Woodley, of Burnside, Chalkpit Lane, Monxton, nr. Andover, Hants, and the membership secretary Mr. K. Hill, 18 Laxton Road, Hunts Cross, Liverpool 25.

The National Conference and Show led in turn to the formation in 1964 of the Amateur Winemakers National Guild of Judges which set itself the task of getting down on paper a system of wine judging, notes for the guidance of show organisers, judges, and judges' stewards, and specimen schedules which clubs or organisations could adopt for their wine competitions.

A tremendous amount of ground work was done on this, and embodied in the handbook which the Guild eventually published, "Judging Home-made Wine" (3/-, from the "Amateur Winemaker," North Croye, The Avenue, Andover).

Organising a wine competition

IF, as a winemaker, you wish to exhibit your wine competitively, you are not likely to encounter many difficulties, so long as you adhere rigidly to any conditions which are laid down in the show's schedule, and if your wine is up to standard, you may even win a prize! If, however, you are a club secretary or official, or even are known locally as someone who "knows a bit about wine," you are liable suddenly to find yourself faced with a request by some flower show or other to lay down rules and regulations for a wine class which the committee is thinking of including for the first time.

Your first action should be to study the Judges Guild handbook, "Judging Home-made Wines," carefully.

Secondly, you have to decide how many, and what, classes you can have (or afford) on this occasion. You should bear in mind that a single wine class is not much use, for no judge can really judge a sweet wine side by side with a dry. Once he has tasted a really sweet wine his palate for drier wines is destroyed for that day! At least two classes are therefore desirable, and more if possible, and many Circles prefer grouping wines into Dry, Medium, and Sweet. It is not really possible to define these in terms of Specific Gravity; the best one can do is to say that a really dry wine is likely to be below 1000.

Given these three main classifications it is an age-old argument as to how wines should be further broken down into the small numbers desirable for a class. Should they be described by ingredient, e.g. "Parsnip, sweet," "Redcurrant, dry," or by purpose, e.g. "Red table wine, dry," "Dessert wine, white"? There are two schools of thought, and the handbook caters for both by giving specimen schedules of all sizes in both systems. It is for you to decide which you prefer.

Having decided upon his classes, the organiser can proceed to draw up some rules, and here are some of the points which obviously he must cover; others may well occur in individual cases.

RULES

Standard 26-oz. wine bottles and no half-bottles should be used, and they should be of clear glass. (Even red wines should be shown in clear bottles, so that the colour can be judged.)

The airspace should be between $\frac{1}{4}$ in. and $\frac{3}{4}$ in.

No separate small tasting bottle (to avoid the necessity of opening the bottle exhibited) should be allowed, and exhibitors should be told that the actual bottle will be opened and tasted.

Bottles should be securely corked, preferably with a stopper cork, which may be wired for travelling.

Labels should preferably be supplied by the organisers, and be about 2 ins. by $\frac{3}{4}$ in., so affixed that the bottom edge of the label is an inch above the bottom of the bottle. On the label should appear only the description of the wine, by use or by ingredient according to the type of schedule adopted.

Golden and tawny wines go in the white wine classes, rosè wines go with the reds if there are no separate classes.

Model rules are set out in the handbook.

Judging

HAVING covered all these points, turn your thoughts to the judges. What will they want? A good judge will bring his own kit—corkscrew, glasses, tea towel, marking sheet, etc., but it is of the greatest assistance if you can ensure that he is provided with glasses for tasting, a spittoon, water for washing up, and a vessel in which to do it, and a palate refresher—cheese, biscuit, bread or something of that sort.

But how, I can hear you asking, does one actually judge wine? And here I run into difficulty, because it is just not possible to describe a taste with pen and paper. And that, of course, is the factor with which one is principally concerned. Taste, and knowledge of wine, is largely a matter of accumulated comparative experience, and it is up to every winemaker, whether he aspires to judge or not, steadily to increase his knowledge and experience of wine by comparing his own products with those of his fellow members and, indeed, with all types of commercial wine. Only in that way can he acquire the requisite experience, and it is one of the pleasantest aspects of our hobby, as you, well know!

A National judge will assess the wine under these four main headings, for which he will award points as follows:—

Presentation	2
Clarity and Colour	4
Bouquet	4
Flavour, Balance and Quality ...	20

Total, out of	30

The first two factors he will assess before opening the bottle.

He will look at its general appearance (cleanliness, neatness and legibility of label, newness of cork, size of airspace, etc.). The bottle should be well polished and, needless to say, scrupulously clean.

The judge will look through the neck of the bottle to judge the clarity of the wine, and at the conical "punt" at the bottom to judge its brilliance. Here there should not be the slightest trace of any yeast or other deposit. A starbright wine will score points over a bright, or a merely clear, wine. A wise exhibitor bottles his wine for show several days ahead after having made sure that it has been adequately racked, and he thus minimises the risk of having any yeast deposit.

The bouquet must be enticing, making you want to taste the wine; it must be vinous, pleasing, and well-developed but not overpoweringly so.

But, when all is said and done, it is the taste of the wine which naturally carries the most marks. The flavour of a wine must be agreeable, reasonably redolent of the fruit or source of origin (though not so much as some expect), vinous and invigorating, with sufficient "bite," enough acid, adequate strength for its purpose (i.e. aperitif, table or dessert) and the correct degree of dryness or sweetness. It should, above all, be well balanced as between sweetness, acidity and astringency, and be free of bacterial or other faults.

Between tastes the judge will clear his palate with biscuit, bread, or something of that sort.

Judging procedure is set out in detail in "Judging Homemade Wine" and wine clubs will find it fascinating to study these clear directions and arrange competitions to give their members judging practice. This can be done by having, say, up to ten bottles of wine available and giving each member a judging sheet on which are set out the possible points to be scored under each heading.

To assist in a complete split-down of the marking, it helps if all the markings normally used by Guild judges are doubled (this, of course, does not affect the end result) and printed marking sheets so devised for practice judging are available from the "Amateur Winemaker."

As long as members are using the same sheets, it is astonishing how similar are the verdicts obtained.

Recipes the year round

THE recipes are given under the months in which they are usually made, so that your winemaking can be practised all the year round, but they are also indexed alphabetically at the back of the book so that any one can be quickly found.

Recipes are given in British measures but these are easily converted to U.S. or metric measures. The pound measure of weight is the same in Britain, Canada and U.S.A., and 1 lb. equals $\frac{1}{2}$ kilo.

The Imperial or English gallon as used in Britain and Canada is 8 pints, 160 liquid ozs. or 2771 cub. ins., whereas the U.S. gallon is 8 pints, 128 liquid ozs., or 231 cub. ins. The English gallon thus equals 1.2 U.S. gallons and in the recipes American readers

should therefore substitute 1 t gallons for each English gallon, and Continental readers 41 litres, as follows:

British (gallons)	1	2	3	4	5
U.S.A. (gallons)	1 ¼	2 ½	3½	5	6¼
Metric (litres)	4 ½	9	13 ½	18	22 ¾
British and U.S.A. (lbs.)	1	2	3	4	5
Metric (kilos)	½	1	1½	2	2½

In all the recipes use, preferably, a wine yeast, but failing that a level teaspoon of granulated yeast per gallon.

It is good practice to add 1 Campden tablet to each gallon of must, and always to use a yeast nutrient.

If you are a diabetic, and wish to make a safe wine, always use the minimum sugar (2-2 ½ lbs. per gallon) and a nutrient to ensure that you ferment it right out to dryness. The wine can be sweetened to taste when finished with Sorbitol.

Warning

Some plants and flowers are so poisonous that they must on no account be used for winemaking. Others are "doubtful" in that they may not be highly poisonous, particularly in the small quantities in which they might be employed in winemaking, but must still be highly suspect. The position is complicated by the fact that some substances used in winemaking, notably sugar and yeast, can sometimes neutralise poisons, so that occasionally safe wines may be made from apparently doubtful sources. But one cannot depend upon this and we would urge winemakers NOT to use anything in the "poisonous" or "doubtful" categories. Our lists are by no means exhaustive and the only safe rule is: if in doubt about a material—don't use it.

Those "Not recommended" are so listed because, although we are often asked to supply recipes using them, they are not suitable winemaking material either because of fermentative difficulties or because they are not palatable.

POISONOUS : Aconite, alder buckthorn, aquilegia, azalea, baneberry, black nightshade, bluebell, buttercup, celandine, columbine, charlock, Christmas rose, clematis, cowbane, cuckoopint, cyclamen, daffodil, deadly nightshade, delphinium, dwarf elder, fool's parsley, foxglove, most fungi, geranium, green potatoes, all hellebores, hemlock, henbane, holly, honeysuckle (the berries), horsechestnut, laburnum, laurel, lilac,

lilies-of-the-valley, lobelia, lupins, marsh marigold, meadow rue, mezereum, mistletoe, monkshood, narcissus, pheasant's' eye, peony, poppy, privet, rhododendron, rhubarb leaves, spearwort, spindleberry, sweet pea, thorn apple, traveller's joy, wood anemone, woody nightshade, yew.

DOUBTFUL : Borage, broom, carnation; chrysanthemum, clover, hawthornberry, pinks.

NOT RECOMMENDED : Agrimony, cabbage, cocoanut, all fungi, including mushrooms, lettuce, marrow, potato, pumpkin, spinach, tomato, turnip.

January

BARLEY WINE

Ingredients:

1 lb. barley	Yeast, yeast nutrient
1 lb. raisins	1 gallon hot water
1 lb. potatoes	The juice of two lemons
3 ½ lb. preserving sugar	1 Campden tablet

Method:

Scrub (or peel if old) and chop the potatoes; grind the barley and raisins in a mincer, having soaked the grain in a pint of the water overnight. Put sugar, barley, potatoes and raisins in bowl and pour on hot (not necessarily boiling) water.

Add the juice of the lemons. Allow to cool until tepid; add the crushed Campden tablet, yeast and nutrient. Leave it to stand in covered pan for 10 days, stirring well daily. Strain, put into fermenting vessel, and fit trap. Siphon off into bottles when clear and no longer fermenting. Ready after about 6 months.

FIG WINE

Ingredients:

2 ½ lb. brown sugar	1 orange
2 lb. dried figs	1 gallon boiling water
½ lb. large raisins	Yeast and nutrient
1 lemon	½ oz. root ginger

Method:

Chop the figs and raisins and place in a large crock with the sugar, the grated lemon and orange rinds (no white pith) and the juice of the two fruits. Bruise the ginger and add that. Bring the water to the boil, and pour it over the ingredients, stirring well to dissolve the sugar, and adding one crushed Campden tablet. When the liquor has cooled to about 70 degrees F., cool enough for you to be able to put your finger in it comfortably, stir in the yeast, cover the crock closely, and leave it in a warm place (about 70 degrees) for twelve days, stirring daily. After that, strain into fermenting jar or bottle and fit trap, and move into a temperature of about 65 degrees. After another two months the ferment will probably have finished; when the wine has cleared, siphon it off into clean bottles. It is best kept at least a year from the date of making but can well be sampled within six months—and no doubt will be!

MAIZE WINE

Ingredients:

1 ½ lb. crushed maize	1 gallon water
3 ½ lb. Demerara sugar	1 lb. raisins
4 sweet oranges	1 lemon
Yeast; yeast nutrient	

Method:

Despite the amount of sugar, this will make a medium wine, and there are many similar recipes which advocate up to as much as even 4 ½ lb. sugar, so if you prefer a sweet wine you can well exceed the normal 3 ½ lb. limit in this case. It is a help to soak the maize overnight in some of the water to soften it, and then, when you come to make your wine, run it through a coarse mincer, together with the raisins. Peel the lemon and oranges, being careful to miss the white pith, and put the rinds into a crock with the sugar, maize, raisins, and the juice of the fruits. Pour over the ingredients the water, which need be only hot (not boiling) add one crushed Campden tablet, and stir well to dissolve it and the sugar. Allow the liquor to cool to 70 degrees F., then add the yeast and yeast nutrient and keep the crock in a warm place, closely covered, for 10 days, stirring well each day.

Then strain into fermenting jar or bottle and fit fermentation trap.

PRUNE WINE

Ingredients:

2 lbs. prunes	1 gallon water
½ lb. raisins	Yeast; yeast nutrient
3 ½ lb. sugar	1 Campden tablet

Method:

Put the prunes in a crock and cover them with the water, mashing and stirring them daily for 10 days. Then strain, and either press the pulp or squeeze it by hand to extract as much juice and flavour as possible. Add the sugar, chopped raisins, and a crushed Campden tablet, and stir to dissolve. Then add the yeast and yeast nutrient and leave to ferment in a warm place, as usual, for 10 days. Keep the crock closely covered and stir daily. Then strain into fermenting jar and fit trap, and move into slightly cooler place (about 65 degrees). After another two months the secondary ferment should be finished and when the wine clears it should be racked off into clean bottles.

RAISIN WINE

Ingredients:

8 lbs. large raisins
1 gallon water

Yeast; yeast nutrient
1 Campden tablet

Method:

Clean the raisins thoroughly by washing them in a colander, then mince through a coarse mincer. Put them into a fermentation jar with a wide neck, pour on the cold water, and add one crushed Campden tablet. Keep the jar covered. Two days later add the yeast and yeast nutrient, and fit a fermentation trap to the jar. Alternatively cover the wide neck with a sheet of polythene secured by a rubber band, which will serve the same purpose. Keep the fermentation jar in a warm place (about 70 degrees F.) for a few days, and afterwards in a temperature of about 65 degrees F. until the ferment has finished. Each day give the vessel a good shake. When fermentation has finished strain the liquor off the raisins, which can then easily be removed (hence the need for a wide-necked jar, with a narrow-necked one it can be a fiddly business). Put into a fresh jar and leave for a further three months before racking (siphoning the wine off the lees) again and bottling.

By using some sugar one can reduce the amount of raisins required, although the wine will have nothing like the same body. Here is a recipe, however, using this method:

RAISIN WINE (2)

Ingredients:

2 lb. raisins
2 lb. sugar

1 gallon water
Yeast; yeast nutrient

Method:

Mince the raisins, put them in the water, and boil for an hour. Strain the liquor on to the sugar, stir well to dissolve, allow to cool to 70 degrees F. and pour into fermenting bottle. Add the yeast and yeast nutrient. Keep in a warm place until it begins to clear, then rack for the first time, into a clean jar, re-fitting trap. When the fermentation ceases completely siphon into clean bottles and cork.

GRAPEFRUIT WINE

Ingredients:

6 large grapefruit	1 gallon water
3 ½ lb. white sugar	Yeast and nutrient

Method:

Clean the fruit and grate the skins finely. Put the water, gratings and juice into a bowl, and add the yeast. Stand the bowl in a warm place (70 degrees F. is ideal), cover closely, and leave for five or six days, stirring thoroughly twice daily. Strain off the liquor through a nylon sieve, or two or three thicknesses of muslin, and dissolve the sugar in it. Put into fermenting jar and fit trap. Leave to ferment out, and when this has happened rack into clean bottles and cork firmly.

CITRUS WINE

Ingredients:

1 lb. raisins	3 ½ lb. sugar
3 grapefruit	Yeast; yeast nutrient
3 lemons	1 gallon water
3 oranges	

Method:

Firstly peel the fruit (do not squeeze the skins or include any white pith) keeping the peel as intact as possible so it can be retrieved easily later. Put water into a crock and add the chopped-up fruit and sugar, stirring thoroughly to dissolve the latter. Then add the yeast and yeast nutrient, cover closely, and leave in a warm place (about 70 degrees F.) for a fortnight, stirring daily. At the end of this period take out the peel and, having strained off the liquor, squeeze out the fruit pulp and add the resultant juice to the bulk. Put into fermenting jar and fit trap, and leave to ferment out. Siphon it into clean bottles when it has done so.

"INSTANT" WINE

by A. S. Henderson

If you have just started winemaking and want an 8 % wine which is suitable for table use, quickly—made, rapid to mature, and low-priced, try this "instant wine" recipe

ingredients :

1 medium (pint) tin	1 lb. granulated sugar
grapefruit juice	1 teaspoon yeast nutrient
½ lb. EDME light dried	Yeast
malt extract	Water to 1 gallon

Method:

Dissolve the sugar in up to ½ gallon of water, putting the saucepan over a very low heat to speed up the solution. Meanwhile dissolve the dried malt extract in a little cold water, open the tin of fruit juice, and funnel everything into the fermentation jar. Dissolve the yeast nutrient with a little warm water and add to the jar, top up with cold water to the shoulder (this should reduce the whole to a safe temperature) and add the yeast. Shake well, and fit a fermentation lock. Stand in a warm place and watch it go ! Within 24 hours the stream of bubbles should be continuous, not less than 1 per second. After a day or two, a thick layer will form on the bottom. Give the jar a swirl round daily to agitate the deposit. When gravity has dropped to 1004, or less (10-14 days), filter. Boil a little filter pulp for 2 mins. in half a pint of water, place a piece of clean linen in a funnel and pour the filter pulp on to it, then pour the wine carefully on to the pulp so as not to disturb it. Return the first few wine glassfuls to the funnel until the filtrate looks reasonably clear. Repeat the filtration two or three days later, and keep the finished wine a week in a cool place before drinking. Other fruit juices (except, God forbid, tomato !) can be used in the same way.

February

TINNED PEACH OR APRICOT

Ingredients:

15 ½ oz. or 16 oz. tin peach slices	½ teaspoon tannin
1 ½ lb. sugar	1 nutrient tablet
½ lb. malt extract	Sauternes wine yeast
1 teaspoon citric acid	Water to one gallon
1 tablespoon pectic enzyme	

Method:

The peaches can be bought in slices in either 15 ½ oz. or 16 oz. tins, as halves in 16 oz. tins, or labelled "white peaches" in 16 oz. tins. Wine firms also sell peach pulp. One 15 ½ oz. or 16 oz. tin of either will make, using the quantities in the recipe, a light dry table wine, but if a fuller-bodied wine is required use two tins of peaches (roughly 2 lb.)—they are quite cheap—and increase the sugar to 2 ¾ lb. (U.S. 2 ½ lb.), the citric acid to 2 teaspoons, and the tannin to 1 teaspoon.

Pour any syrup into your fermenting jar, then mash the fruit with a stainless steel spoon. Boil two quarts of water and dissolve the sugar and malt extract in it, then put pulp into polythene bucket and pour the boiling syrup over it. Allow to cool to tepid (70 degs. F) before adding acid, tannin and pectic enzyme. Stir well, cover closely, and leave in a warm place. Next day stir, pour the whole into the fermenting jar with the syrup from the can, and add yeast, nutrient, and enough cold water to bring level of must to just below the shoulder of the jar, leaving room for a "head." Fit air lock and leave in a warm place for 10 days, shaking jar daily to disperse pulp through liquid. Then strain into fresh jar, and top up to bottom of neck with syrup. Ferment out, racking and bottling as usual. For a sweet wine use a 1 lb. 12 oz. tin of pulp and 3 ¼ lb. of sugar.

ALMOND WINE

Ingredients:

1 lb. raisins	2 lemons
1 ½ oz. bitter almonds	Yeast
3 lb. white sugar	Yeast nutrient
1 gallon water	

Method:

The almonds and raisins should be minced and then boiled gently in the water for about an hour. Strain, and add enough fresh water to make the quantity up to one gallon again. Strain the liquor on to the sugar, stirring well to dissolve, then add the juice and

grated rind of the lemons, taking care to include no white pith. Add the yeast and nutrient, when the temperature has dropped to 70 degrees F. and endeavour to maintain roughly that temperature for 10 days, keeping the crock closely covered. Then strain the wine through a nylon sieve into the fermenting bottle and fit a fermentation trap: Leave until it begins to clear and then rack.

DRIED BILBERRY WINE (or Elderberry or Sloe)

Ingredients:

½ lb. dried bilberries	Yeast nutrient and yeast
4 oz. raisins	2 ½ lb. sugar
1 gallon water.	1 level teaspoon citric acid

Method:

Chop the raisins and pour the boiling water over them, the bilberries, and the sugar. Stir well to dissolve sugar. Allow to cool, then add citric acid, nutrient and yeast. Keep covered in warm place and stir daily for a week, pushing the fruit down. Strain into fermenting jar, ferment, rack when clear, and bottle. An excellent dry red table wine, best made with a Bordeaux or Pommard yeast. For a sweet wine increase sugar to 3 lb. and use a Burgundy yeast.

N.B.—It is possible to take a second "run" off the discarded fruit by adding another gallon of boiling water, more sugar, more nutrient and more acid. When it cools, add some of the first batch of fermenting wine as a starter and ferment for 10 days on the pulp, and continue as before. A lighter wine will result.

CARRAWATTEE

Another "tea-wine-by-stages" recipe from Mr. F. G. Spark,
of 88 Old Winton Road, Andover

Collect 1 ½ pints of tea left over from the teapot into a 1 quart bottle, add 6 oz. sugar, 4 oz. raisins or sultanas, one saltspoon of dried H.H. yeast, or the equivalent amount of whatever yeast you are accustomed to using.

When you have collected four bottles as above, place in a gallon jar, add one ounce of Caraway seeds and the juice of two lemons, or level teaspoonful of citric acid, fit air lock. Strain after one month, and carry on in the usual manner until fermentation ceases; then bottle.

This may be drunk in 12 months but is much improved by keeping for two years.

If the wine should cloud up in the bottle do not throw it away as it has this habit, like plum wine it will become quite clear again after a few weeks.

MANGOLD WINE

Ingredients:

5 lb. mangolds	2 lemons
1 gallon water	2 oranges
3 lb. sugar	Yeast and nutrient

Method:

Wash the mangolds but do not peel. Cut into pieces and boil until tender. Strain, and to every gallon of liquor add sugar and rinds of oranges and lemons (avoid the white pith) as above, and boil for 20 minutes. Allow the liquor to cool, and add the juice of the oranges and lemons. Stir in the yeast (a general purpose wine yeast or a level teaspoonful of granulated yeast) and leave in a warm place, well covered, for about a week. Then stir, transfer to fermenting bottle or jar, and fit fermentation trap. When the wine clears, rack it off with a siphon into a clean storage vessel. Keep it for another six months in a cool place, then bottle.

ORANGE WINE

Ingredients:

12 sweet oranges	1 gallon water
3 ½ lb. white sugar	Yeast and nutrient

Method:

Peel six of the oranges thinly, avoiding the white pith like the pith (it imparts a most bitter taste to the wine). Pour a quart of boiling water on to the rind and allow to stand for 24 hours, then strain off the water into a bowl containing three quarts of water and the sugar. Cut all the oranges in half and squeeze the juice into the bowl. Stir until the sugar is dissolved, and then add the yeast. If you use a general purpose wine yeast, which is to be recommended, the liquor can safely be strained from the crock into a fermenting jar, and fitted with a trap, within two or three days. Siphon it off the lees for the first time when it clears, and rebottle two or three months later.

SEVILLE ORANGE WINE

Ingredients:

24 thin skinned Seville oranges	8 lb. white sugar
4 lemons	2 gallons water
	Yeast and nutrient

Method:

Peel 12 of the oranges and throw away the peel. Cut up oranges and lemons into slices and put in earthenware pan. Boil the water and pour on boiling. Place in moderately warm corner and when tepid add yeast, a good wine yeast or a level teaspoonful of granulated yeast; stir each day for a fortnight. Strain, then add sugar and stir until dissolved. Put in 2-gallon jar, filling up to top. Put surplus in black bottles (bottles must be dark or wine will lose its colour). Use this for filling up large jar. Ferment to completion under air lock, rack when it clears, and bottle two months later.

PARSNIP SHERRY

Ingredients:

4 ½ lb. parsnips	4 lb. Demerara sugar
½ oz. hops	1 teaspoonful gravy
½ lb. malt extract	browning (liquid variety)
1 gallon water	Yeast
2 lemons	

Method:

Clean parsnips, but do not peel, and ensure that their weight is not less than four pounds after cleaning. Cut them into slices and boil gently in half the water until soft (but not mushy, or the wine will not clear). Then strain into a pan. Put the hops in a bag in the remaining water and boil gently for half an hour, then stir in the gravy browning (which is only caramel colouring). Mix the liquids together and stir in the malt and sugar, allow to cool to blood heat, and then add yeast. Keep warm and closely covered and ferment for 14 days, then stir, siphon into fermenting jar and fit air lock. When the wine clears siphon off into sterilised bottles and keep for a further six months.

March

BANANA WINE

Ingredients:

4 lbs, of peeled bananas	1 gallon of water
½ lb. of banana skins	1 lemon, 1 orange
¼ lb. of raisins	3 lbs. of sugar
Yeast and nutrient	

Method:

Use black or spotted bananas, whatever you can scrounge. Place bananas and fruit peel into a cloth bag and put the bag, tied up, into a large saucepan or boiler with the water. Bring to the boil, then gently simmer for half an hour. Pour the hot liquor over the sugar and fruit juice, and when the cloth bag has cooled squeeze it with the hands to extract as much liquor as possible. When all the liquor is lukewarm (70 degrees F.) add the yeast. Leave it in a warm place for a week, stirring daily, then pour into a glass jar and move to a cooler place; it will be a thick-looking mess, like a lot of soapsuds. Keep it well covered and in a couple of months it will have a large sediment at the bottom. Siphon off, then add the chopped raisins. Fit an air lock and siphon off again after four months; by then it will have started to clear. Leave a further six months before sampling. It improves the longer you keep it.

PINEAPPLE LIQUEUR

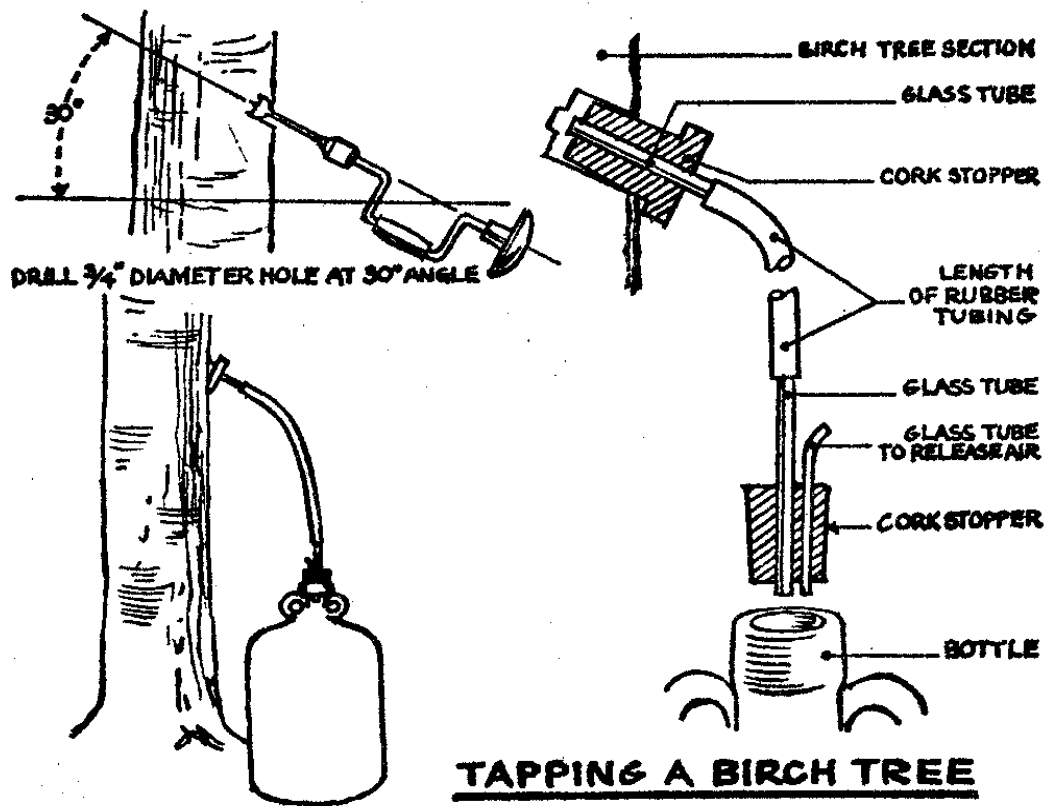
Buy a big juicy pineapple and try your hand at making this really delightful liqueur. Slice the pineapple thinly, sprinkle with a little sugar, and leave for 24 hours. Press out the juice, measure it, and add an equal amount of brandy to which sugar has been added in the proportion of 2 ozs. sugar to every half pint of brandy. Put in a jar with a few slices of fresh pineapple and leave for three weeks, then strain and bottle.

BIRCH SAP WINE

This is a wine, which, intriguing by its novelty, is also an excellent wine in its own right. It is probably of Baltic origin and during the last century was a popular drink in Russia, so much so that upon occasions whole forests of young birch trees were killed by the peasantry, who tapped them too enthusiastically . . . so beware of that error. No

harm will come to a tree by the loss of a gallon or so of sap in the spring (about the first fortnight in March) but the hole must afterwards be plugged with a wooden plug, and can then be used again next year. I am also told, although I can produce no written authority for it, that birch sap wine was a favourite with the Prince Consort, who doubtless had plenty of trees at his disposal!

The main precautions to observe are that you do not tap a very young tree—it should be at least 9 in. diameter—that you bore only far enough into the tree for your tap or tube to be held securely (bore to just beyond the inside of the bark, where the sap rises, and not into the "dead" wood of the centre of the trunk), that you do not take more than a gallon of sap from one tree, and that you plug the hole afterwards. Neglect of any of these points may harm the tree.



Ingredients:

1 gallon birch sap	3 lb. white sugar
2 lemons	(or quart of honey)
1 sweet orange	1 Seville orange
1 lb. raisins	Yeast and nutrient

Method:

Obtain a wooden beer or wine-barrel tap, a piece of glass or plastic tubing, or even a piece of bamboo cane with the pith removed. With a brace and bit of the same diameter as tap or tube bore a hole into the trunk of the tree to just beyond the inside of the bark, and insert the tube, which should incline slightly downwards to allow the sap to run easily. In March, when the sap is rising, it should be possible to draw off a gallon or so of liquor in two or three days. Plug the hole afterwards.

Peel the oranges and lemons (discard all white pith) and boil the peel in the sap for 20 minutes. Add enough water to restore the volume to one gallon, then pour into a crock containing the sugar and chopped raisins. Stir until sugar is dissolved; when the liquor has cooled to 70 degrees F. add the fruit juice and yeast. Cover the crock with a thick cloth and keep in a warm place until fermentation has quietened. Then strain into fermenting jar and fit trap. Leave for about six months, then siphon off and bottle. Use strong bottles, tie down the corks, and store the bottles on their sides for at least another six months before sampling.

Sycamore and walnut sap wines can be made in the same manner and an excellent beer can be produced by reducing the sugar to 1 lb.

PINEAPPLE WINE

Ingredients:

4 pineapples	3 ½ lbs. preserving sugar
2 lemons	Yeast
9 pints water	Yeast nutrient

Method:

"Top and bottom" the pineapples, then slice them into a one-gallon saucepan and cover with three pints of water. Bring to boil, and simmer for 15 minutes. Strain on to sugar in earthenware crock, and add remaining six pints of water, cold. Add the juice of the lemons. Stir well to dissolve sugar thoroughly, and leave to cool to blood heat. Then add yeast (wine yeast, a level teaspoonful of dried yeast, or ¾ oz. of baker's yeast), and a yeast nutrient if desired. (I used a general-purpose wine yeast and a teaspoonful of a proprietary nutrient). Cover the pan closely for a week and leave it in a warm place, giving a daily stir, and then transfer to fermenting jars or bottles, which should be filled to the bottom of the neck and fitted with fermentation traps. Keep in temperature of about 60 degrees until wine begins to clear and has thrown a substantial sediment, then siphon off into clean bottles. Allow it to throw a fresh sediment, then siphon off into clean bottles and cork. This is a delicious light wine with a delightful bouquet.

RAISIN WINE

Dried fruits, like grains, are a good standby in the winter months when fruit is not plentiful. Try this easy raisin wine:

Ingredients:

1 gallon water	2 lb. white sugar
1 lb. raisins	Yeast and nutrient

Method:

Chop the raisins and boil them in the water for an hour, adding more water to restore the volume to the original one gallon. Then rub them through a sieve. Restore them to the water and dissolve the sugar in it, and when cool add the yeast, in this case preferably a pre-prepared wine yeast starter but a pinch of dried yeast will do if necessary. Ferment the liquor on the raisins, and it is preferable to use a wide-mouth bottle. Fit trap, and rack for the first time as soon as the wine begins to clear. Re-bottle as soon as it throws a fresh sediment.

RICE WINE (or Sake)

Ingredients:

3 lbs. rice	Yeast and nutrient
3 lbs. sugar	1 gallon water
1 lb. large raisins	A pinch of isinglass

Method:

Put the rice and sugar into a bowl, cover with warm water. Add the chopped raisins and dissolve the yeast in a little warm water and add. Sprinkle the isinglass over the top. Stir often the first three days, then leave to ferment, keeping well covered. Leave nine days in all before straining and putting into fermenting jar. Bottle when completely clear.

This produces a strong, sparkling wine which is inclined to be harsh at first but which improves greatly by being kept.

A variation which you may prefer is to add a little citric acid to the basic ingredients (say the juice of one lemon), and use a sherry yeast.

DRIED PEACH WINE

Ingredients:

2 lb. dried peaches	Yeast
3 ½ lb. granulated sugar	Yeast nutrient
1 gallon water	

Method:

Soak the peaches for 12 hours in the cold water, then place all in a large saucepan or preserving pan, bring to the boil, and simmer for five or six minutes. Strain the liquid off into a crock, add the sugar and the yeast nutrient, and stir well until all is dissolved. Allow to cool to about 70 degrees F., then add a pre-prepared general-purpose wine yeast starter or a level teaspoonful of granulated yeast.

Cover the bowl closely and keep in a temperature of 70-75 for four days, giving it a daily stir; then stir, transfer to fermenting jar, and fit air lock. When wine clears and fermentation has finished, siphon it off the sediment into clean bottles and cork securely.

VIN ORDINAIRE

WHITE

Ingredients:

½ pint canned orange juice	1 teaspoonful Pectozyme
½ pint canned pineapple juice	Bordeaux yeast
2 lbs. sugar	Water to 1 gallon

Method:

The sugar is poured into a gallon jar, the juices and nutrients, etc., are added and the jar is topped up to the shoulder with cold water. Vigorous stirring will dissolve the sugar and the yeast starter and Pectozyme are added immediately. This wine will ferment out to dryness in about 3-4 weeks at 75 deg. F. At the end of this time 2 Campden tablets should be added and the wine racked a week later. After 3-4 months the wine is brilliantly clear and is drinkable as a rough white wine but is much improved if cask matured for two months.

RED

Ingredients :

1 lb. fresh elderberries	1 teaspoon Pektolase
(or ¼ lb. dried)	Burgundy yeast and nutrient
1 lb. raisins (or ¼ pint red	2 lemons (or ¼ oz. citric acid)
grape concentrate)	Water to 1 gallon
1 ½ lb. sugar	

Method :

The ingredients are crushed and placed in a bucket and boiling water is poured over them. The water level is brought up to 1 gallon and when cool the yeast starter and Pektolase are added. The pulp is strained off after four days and thereafter fermentation continues in a gallon jar. Rack when all sugar has been used up (generally within a month) and allow to clear.

April

PRIMROSE WINE

Ingredients:

1 gallon primroses	1 gallon water
3 ½ lb. white sugar	1 lemon
2 oranges	Yeast; yeast nutrient

Method:

Bring the water to the boil and stir into it the sugar, making sure that it is all dissolved. Put the peel of the oranges and lemon into a crock, bowl, or polythene bucket, being careful to exclude all white pith, to prevent the wine from having a bitter taste, and pour the hot syrup over the rinds. Allow to cool to 70 degrees F., then add the flowers, the juice of the fruit, your chosen yeast, and some yeast nutrient. Cover closely and leave for five days in a warm place, stirring each day. Then strain through a nylon sieve or muslin into a fermenting jar, filling it to the bottom of the neck, and fit a fermentation trap. Leave for three months, then siphon the wine off the yeast deposit into a fresh jar. A further racking after another three months is helpful, and shortly after that the wine will be fit to drink, if still young.

BROOM WINE

Later in the month, and right up till July, you can make another flower wine which is thought by many to be one of the most agreeable table wines, when made reasonably dry—broom, or gorse,

Ingredients:

1 gallon gorse flowers	2 oranges
3 lb. sugar	1 gallon water
2 lemons	Yeast; yeast nutrient

Method:

The best plan is to put your flowers in a calico bag, which can then be dropped into the water and simmered for a quarter of an hour, afterwards making up the water to the original quantity. When you remove the bag, squeeze it well to extract the liquor, and return this to the bulk. Then dissolve the sugar in the liquid, and add the lemon and orange juice, and the skins (no pith) of the fruit. Allow the liquor to cool to 70 degrees F., then add the yeast (a general-purpose wine yeast) or a level teaspoon of granulated yeast and yeast nutrient. Three days is sufficient a soaking period to extract colour and aroma, and for fermentation to get well under way, as long as the liquor is kept in a warm place (65-70 degrees F.), closely covered and given an occasional stir. Then strain it into a

fermenting jar and fit an air lock and put it in a slightly cooler place. Siphon it off the lees when the top third has cleared (after two to three months) and again three months later. Put in a cooler place still (55 degrees F.); it will be ready to drink after another two months or so.

COLTSFOOT WINE

Coltsfoot grows abundantly in the British Isles but the flowers are not always easy to come by in quantity unless you have previously earmarked the plant's position. It is usually to be found in waysides, railway embankments and waste places, the bright yellow flowers putting in an appearance from March onwards, long in advance of the heart-shaped leaves. Because of this the old country name for this plant was "Son Before Father"! (Those who do not live in the country can obtain the dried flowers from a herbalist.)

Ingredients:

1 gallon coltsfoot flowers	3 ½ lb. sugar
1 gallon water	Yeast and nutrient
2 oranges	2 lemons

Method:

Dissolve the sugar in the water and bring to the boil. Simmer for five minutes. Remove from heat and allow to cool. Peel the oranges and lemons thinly, and put the rinds into a bowl or stone jar with the juice and the coltsfoot flowers (just the heads). Pour over the cold syrup, and stir. Add the yeast mixed with a little of the lukewarm liquid, and leave to ferment for seven days in a warm place, and well covered. Stir daily. Strain into a fermenting jar, cover, or insert an air lock. When fermentation ceases, siphon off and bottle.

COWSLIP WINE

Ingredients:

1 gallon cowslip flowers	2 oranges; 1 lemon
1 gallon water	Yeast
3 ½ lb. white sugar	Yeast nutrient

Method:

Do not use the green stalks and lower parts of the flowers, but only the yellow portions. This is rather fiddling, but does protect the taste and colour. Boil the water, dissolving the sugar in it, and then pour the hot syrup over the peel of the fruit, having been careful to exclude all white pith, which will give a bitter taste. When the liquor has cooled to 70 degrees F. add the flowers, yeast nutrient, the juice of the fruit, and finally the yeast. Leave to ferment in a closely covered crock for four to five days (no longer or

the taste will be impaired), then strain into fermenting vessel and fit trap. Siphon off for the first time when the wine begins appreciably to clear, then leave for another three months before the final racking into sterilised bottles.

DANDELION WINE (1)

Ingredients:

3 quarts flowers	2 lemons, 1 orange
1 gallon water	Yeast and nutrient
3 lb. sugar	1 lb. raisins

Method:

The flowers must be freshly gathered (traditionally St. George's Day, April 23rd, is the correct occasion), picked off their stalks, and put into a large bowl. One does not need to pick off the petals: use the whole heads. Bring the water to the boil, pour over the dandelions, and leave for three days, stirring each day. Keep the bowl closely covered. After third day, turn all into a boiler, add the sugar and the rinds only of the lemons and orange. Boil for one hour. Return to the crock, and add the juice and pulp of the lemons and orange. Allow to stand till cool, then add wine yeast or a pinch of dried yeast, and yeast nutrient, since this is a liquor likely to be deficient in desirable elements. Let it remain closely covered for three days in a warm place, then strain into fermenting bottles and divide the raisins equally amongst them. Fit traps. Leave until fermentation ceases and rack when wine clears. This wine, made in April or early May, is ready for drinking by Christmas, but improves vastly by being kept a further six months.

DANDELION WINE (2)

Ingredients:

2 quarts dandelion heads	4 oranges
3 lb. white sugar	Yeast nutrient
1 gallon water	Yeast

Method:

This recipe makes a pleasant alternative to the foregoing one. It is important that the flowers should be picked in sunshine, or at midday, when they are fully opened, and the making of the wine should be done immediately.

Measure the yellow heads, discarding as much green as possible (without being too fussy about it), bringing the water to the boil meanwhile. Pour the boiling water over the flowers and leave them to steep for two days. Again, be careful not to exceed this time or a curious odour often invades and spoils what is a most pleasant table wine, properly made. Boil the mixture for ten minutes with the orange peel (no white pith) and strain through muslin on the sugar, stirring to dissolve it. When cool add the yeast nutrient, fruit

juice and yeast. Put into fermentation jar and fit trap, and siphon off into clean bottles when the wine has cleared. It will be just right for drinking with your Christmas poultry!

FARMHOUSE TEA AND RAISIN WINE

Ingredients:

2 lb. large raisins	4 lemons
1 lb. wheat	1 gallon water
1 oz. tea	Yeast and nutrient
2 lb. sugar	

Method:

Tie the tea loosely in a muslin bag. Pour the boiling water over it and let it mash, leaving it in the liquor until it is lukewarm. Remove the bag, and to the liquor add the chopped raisins, wheat, sugar and sliced lemons. Add a Campden tablet. Dissolve $\frac{1}{2}$ oz. of baker's yeast in the liquid and stir it in. Leave it to ferment in a closely-covered pan for 21 days, stirring often, then strain into fermenting bottle and fit trap. Siphon off into clean bottles when fermentation has ceased.

TEA WINE

Ingredients:

4 pints tea (the leavings in the pot)	2 lemons
1 $\frac{1}{4}$ lb. sugar	Yeast and nutrient

Method:

The "key" to the recipe is: 5 oz. sugar to the pint of tea. Save the leavings from the teapot daily until you have accumulated four pints. It should be noted that this should not be "strong" tea but rather the weaker tea one obtains from the "second pot."

When you have the half-gallon, bring it to the boil in a one-gallon saucepan, add the sugar, and boil just long enough to ensure that it is thoroughly dissolved. This will give you a specific gravity of about 1100, or sufficient to produce a wine of about 13% alcohol by volume. Pour into an earthenware jar, add the juice of the lemons, half a teaspoonful of yeast nutrient, and, when cool, a pinch of dried yeast. Keep closely covered in a warm place. When the first vigorous ferment is over, stir, transfer to a fermenting bottle, and fit trap. When it begins to clear, after about six weeks, siphon off into sterilised bottles and keep for a further 4-5 months. If you wish to make a larger quantity, the second half-gallon can be prepared in the same way (except for the addition of yeast) and added, when it has cooled to blood heat, to the first, which by then will be fermenting nicely.

May

RHUBARB WINE

Rhubarb contains an excess of oxalic acid, which is rather unpleasant and is best removed by the use of precipitated chalk.

Ingredients:

6 lb. rhubarb	1 gallon water
(preferably red)	Yeast; nutrient
3 ½ lb. white sugar	1 lemon

Method:

Wipe the rhubarb with a damp cloth and cut it into short lengths, and crush it in a crock with a piece of hardwood. Pour the cold water over it and add one crushed Campden tablet. Leave three days, closely covered, stirring several times daily. Strain, squeezing the pulp as dry as possible, and then add 1 oz. of precipitated chalk (obtainable at a chemist); the juice will fizz. This may suffice, but if the juice still has an acid taste add up to another ½ oz., but not more. Then add the sugar, the yeast, the yeast nutrient, and the juice of two or three lemons. It is worth using a good wine yeast (Sauterne, Tokay or Sherry). Put into fermenting vessel and fit trap, keeping half a pint or so separately in a bottle plugged with cotton-wool. When the ferment quietens top up with this. Leave until the wine begins to clear and the yeast settles; then rack for the first time. If you wish to remove all colour add half a dozen clean, broken eggshells. This is an excellent wine for blending, since it will take up the flavour of any other and its own will be virtually lost.

MEAD

Ingredients:

4 lb. English honey	1 lemon
1 orange	1 gallon water
Yeast and nutrient	

Method:

Put the honey into the water and bring to the boil, then pour into a crock and allow to cool. Add the juice from the orange and lemon, and the yeast, preferably a Maury yeast, or all-purpose wine yeast, and nutrient.

N.B.—It is most important to add a good nutrient, since honey is deficient in essential minerals. Pour into fermentation vessel and fit airlock. Allow to ferment to completion—this is liable to take much longer than with most country wines—and rack

when no further bubbles are passing. Mead should preferably be matured for at least a year after this, but one needs to be very strong-willed to follow this advice!

HAWTHORN BLOSSOM WINE

Ingredients:

2 qts. of hawthorn blossom	2 lemons
3 ½ lb. white sugar	9 pints water
Yeast and nutrient	

Method:

Grate the rind from the lemons, being careful to include no white pith, and boil with the sugar and the juice of one lemon in the water for half an hour. Pour into bowl and when it has cooled to 70 degrees F. add the yeast (and, preferably, as with all flower wines, a good yeast nutrient). Leave for 24 hours, then tip in the flowers. Let the mixture stand for another eight days, stirring well each day. Then strain through two thicknesses of butter muslin into fermenting vessel, and fit fermentation trap. Rack for the first time when it clears, and after a second racking about three months later (about six months in all) bottle in the usual way. This is a light and delicious wine.

LEMON THYME WINE

(By Mr. L. Foest, Penygraig House, Ammanford, Cams.)

Ingredients:

1 pint lemon thyme leaves (no stalks)	1 gallon water
1 lb. raisins	4 quart measures of rhubarb
3 lb. sugar	Yeast and nutrient

Method:

Cut up the rhubarb into ½ in. lengths, and chop the lemon thyme (to approximately the size of mint when making mint sauce). Pour boiling water over them, and then add the raisins. Stir every day for two weeks. Strain on to the sugar, stir thoroughly and add yeast, wine yeast, or a level teaspoonful of granulated yeast. Leave to ferment, closely covered and in a warm place, for another two weeks. Strain into fermenting vessel and fit air lock, and leave until it has fermented right out. Ladies may prefer to add ½ lb. - 1 lb. more sugar to obtain a much sweeter wine, but this is best done finally, to taste, and not at the outset.

NETTLE WINE

Ingredients:

2 quarts young nettle tops	1 gallon water
4 lb. white sugar	2 lemons
½ oz. root ginger	Yeast; yeast nutrient

Method:

Pick only the tops of the nettles, rinse them in water, and drain. Simmer them in some of the water with the bruised ginger and lemon peel (being careful to exclude any white pith) for forty-five minutes. Strain, and make the liquor up to a gallon by adding more water. Pour this hot liquor over the sugar, add the juice of the lemons and the yeast nutrient, and stir until the sugar dissolves, and when the liquor has cooled to 70 degrees F. add the yeast, preferably a general purpose wine yeast. Keep the crock closely covered in a warm place, and after four days stir thoroughly and transfer the liquor to fermentation vessels and fit air locks. When the wine begins to clear, rack off into fresh bottles, and leave for another three months before the final bottling.

SACK

Many, out of curiosity, want to try making sack, once a favourite English drink, mentioned by Shakespeare and earlier writers. It can be made as follows:

Ingredients:

Three or four fennel roots	2 gallons water
3 or 4 sprays of rue	4 lbs. honey
Yeast; yeast nutrient	

Method:

Wash the roots and leaves and boil them in the water for 45 minutes. Do not be tempted to add more fennel or you will get an unpleasantly strong flavour. Then pour the liquor through a nylon sieve and add the honey. Boil the whole for nearly two hours, skimming off any froth or scum which arises. Allow the liquor to cool to 70 degrees F., then add your chosen yeast and yeast nutrient, and put into cask or fermenting jars and fit traps. Sack, like most meads, may be a little slow to ferment and mature, and it is important not to omit the yeast nutrient, or this will be aggravated. Rack after four months if the sack has cleared, if not, delay racking until it has. It is fit for drinking after a year.

VANILLA WINE

Ingredients:

6 lb. rhubarb	4 lb. white sugar
1 gallon cold water	2 lemons
1 gallon hawthorn blossom	Yeast and nutrient

Method:

When boiling water is used in the making of rhubarb wine jellification is often caused later, during fermentation. It is safer, therefore, to employ a cold water method. If cold water is used, of course, the natural yeasts present in quantity (the bloom on the rhubarb) may complicate your ferment if you are using a wine yeast and it is therefore best to add a little sulphite (one Campden tablet per gallon) at the outset. Alternatively you may care in this case to ferment with the natural yeast (in this case, since there is so much of it present, the method usually works quite well). If you do, omit the Campden tablet, and add no yeast.

Cut the rhubarb into small pieces, cover with the cold water, and add the hawthorn flowers and the juice and rind of the two lemons, excluding any white pith. Add also one crushed Campden tablet. Keep the pan closely covered (not in a warm place) and stir daily for ten days. Strain on to 2 lb. sugar, stir thoroughly until all sugar is dissolved, and add yeast. Keep in a warm place, closely covered. After four to five days add the remainder of the sugar, stirring thoroughly, then transfer the liquor to fermenting jar and fit trap. Siphon off the lees after three months, and again three months later, when the wine may be bottled. At the second racking it will be vastly improved by the addition of $\frac{1}{4}$ to $\frac{1}{2}$ pint of glycerine, to counter any over-acidity.

BALM WINE

Ingredients:

2 quarts of Balm Leaves, or a packet of Heath and Heather Dried Balm Leaves
3 lb. sugar and 1 lb. raisins (1 lb. barley if required)
1 lemon and 1 orange and yeast; nutrient

Method:

Add boiling water to the bruised leaves, raisins, sugar and the juice and rinds of the lemon and orange. When cool add yeast. Allow to work for seven days then siphon into fermenting vessel with air lock until fermentation is finished. The tender shoots should be used if aroma is considered of most importance.

ELDERFLOWER

Ingredients:

$\frac{2}{3}$ pint elderflowers	$\frac{1}{2}$ lb. raisins
1 gallon water	Juice of 3 lemons
3 $\frac{1}{2}$ lb. white sugar	Yeast; nutrient

Method:

Gather the flowers on a sunny day when they are fully opened, and trim them from the stems with a pair of scissors, until you have a pint (pressed down lightly) of petals. Bring the water to the boil and pour over the flowers, then add the sugar, chopped raisins and lemon juice. When cool (70 degrees F.) add the yeast (a pre-prepared wine yeast is best, but a level teaspoon of granulated yeast can be used) and nutrient. The nutrient is most important in this case. Cover well and leave to ferment in a warm place for four or five days. Strain into another jar, fit air lock, and leave to ferment. When it clears siphon it off the deposit for the first time; two months later rack it again, and bottle it.

ELDERFLOWER (2)

Ingredients:

1 $\frac{1}{2}$ pts. stripped elder blossom	3 $\frac{1}{2}$ lb. Demerara sugar
2 lemons	1 gallon boiling water
2 oranges	Yeast
2 pieces root ginger	Yeast nutrient

Method:

Slice the lemons and oranges and put them in a crock with the flowers, ginger and sugar. Pour on to them the boiling water, and add the yeast nutrient. When the liquor has cooled to blood heat add yeast, and allow to ferment for four days, keeping closely covered in a warm place. Then strain, put into fermenting bottle, and fit trap. Leave for about two months, then rack off, cork tightly, and keep for another two months.

SPARKLING ELDERFLOWER

Ingredients:

3 quarts elderflowers	3 ½ lb. sugar
1 gallon water	2 lemons
Wine yeast	Yeast; nutrient

Method:

Cut the elderflowers from the stalks, add a gallon of boiling water, and leave for a few days, stirring occasionally. Strain on to 3 ½ lb. of sugar and the juice of two lemons, add a teaspoonful of yeast nutrient, and a wine or champagne yeast.

This wine will be nearly dry but when it has started to clear and while there is still some sugar present it may prove suitable to convert into a sparkling wine. A bottle containing some of the wine is stood in a warm place and lightly plugged with cotton-wool. If after a week a slight yeast deposit has formed it is quite safe to transfer all the wine to champagne bottles which are either closed with corks well wired down or by screw caps similar to cider flagons. The bottles are stored on their sides in a cool place and after six months or so should be sparkling and ready to drink. If on the other hand when trying the wine out for its suitability for bottle fermentation a heavy yeast deposit is noted then fermentation must be continued for a few more days or even weeks till there is less sugar in the wine. A further test then should show a smaller yeast deposit, in which case the wine can be bottled and complete its fermentation in the bottle. Bottling a wine which shows a heavy deposit will inevitably lead to burst bottles.

GREEN GOOSEBERRY

Ingredients:

6 lb. gooseberries	2 ½ lb. preserving sugar
6 pints water	Yeast

Method:

Top, tail and wash the gooseberries, put into large crock and squeeze by hand until they are pulpy. Then pour on the boiling water and allow to stand for three days, well covered, stirring occasionally. Strain through two thicknesses of muslin, and add the sugar, stirring until it is all dissolved, then add yeast and yeast nutrient. Put into fermenting bottle and fit trap, leaving until bubbles cease to pass; then rack off and leave to mature, siphoning off the lees again after another six months. Leave for a year before drinking. Indistinguishable from a good hock.

JUNE

WALLFLOWER WINE

Ingredients:

1 pint wallflower blossoms	1 teaspoon grape tannin
½ lb. minced sultanas	Water to 1 gallon
2 ½ lb. sugar	Yeast and nutrient
Juice of 2 lemons	

Method:

Put the sugar, minced sultanas, and flowerlets into a polythene bucket and pour over them 3 quarts hot (not boiling) water. Stir vigorously. When cool add the lemon juice, tannin, and a general-purpose wine yeast, and ferment, well covered, for not more than three days. Strain into fermentation jar, top up with cold boiled water to bottom of neck, fit fermentation lock, and continue as usual.

PARSLEY WINE

Ingredients:

1 lb. Parsley (fresh) or	4 lb. sugar
1 packet (Heath and Heather)	2 oranges and 2 lemons
Dried Parsley	1 gallon water
½ oz. Bruised Ginger (if liked).	Yeast and nutrient
(1 lb. Barley can be added if required)	

Method:

Boil the parsley (the dried variety should firstly be infused for 24 hours), bruised ginger and thinly peeled rinds of the lemons and oranges for 20 minutes in the gallon of water. Strain on to the sugar and stir well. When lukewarm add the yeast and the fruit juice. Stir and cover, leave for 24 hours. Pour into a fermenting jar and insert an air lock. Leave in a warm place to ferment to a finish. Siphon off into a storage jar.

SAGE WINE

Ingredient:

8 lb. stoned raisins	4 lb. sage leaves
1 lb. barley (if desired, it will lend "body" to the wine)	Yeast and nutrient
	2 Lemons
	1 gallon water

Method:

Pour the boiling water on to the raisins and barley and add the chopped leaves of the red sage. Allow to cool and then add the juice of the two lemons and the yeast (a pre-prepared wine yeast, a level teaspoonful of dried yeast, or $\frac{3}{4}$ oz. baker's yeast). Keep covered, in a warm place, for seven days, stirring daily, then place in a fermentation vessel with an air lock and ferment in the usual way.

BRAMBLE TIP

Ingredients:

1 gallon bramble tips	1 gallon water
3 lb. preserving sugar	Yeast and nutrient

Method:

Place the tips in a crock and cover them with boiling water. Leave this to stand overnight, then bring to the boil and simmer gently for a quarter of an hour. Strain through muslin on to the sugar, add the yeast when it has cooled, and keep closely covered in a warm place for ten days. Then pour into fermenting jar and fit trap. Leave until wine clears, then siphon off and bottle.

JULY

REDCURRANT, WHITECURRANT or BLACKCURRANT WINE (1)

Ingredients:

1 gallon blackcurrants	3 ½ lb. sugar to every gallon
1 gallon boiling water	of juice
Yeast and nutrient	

Method:

Strip the currants, wash them very thoroughly, and put them in a large vessel. Bruise well to extract the juice, and pour on the boiling water—there should be sufficient to cover the fruit completely.

Leave it until the next day, then strain through a coarse cloth, pressing the currants well. Measure the juice, and add sugar in the above proportion. When the sugar is dissolved add yeast, and put liquor into a clean jar or cask fitted with a fermentation lock and leave to ferment. When it stops working and has cleared, siphon off into clean bottles and cork securely. Keep another nine months before bottling.

BLACKCURRANT WINE (2)

Ingredients:

3 lb. blackcurrants	1 gallon water
4 lb. preserving sugar	Yeast and nutrient

Method:

Put the currants into a large earthen jar and crush them. Boil up the sugar in the water and pour, still boiling, on to the currants. When it has cooled to about blood heat, add the yeast (wine yeast or a level teaspoonful of dried yeast) and keep closely covered for five days in a warm place, giving it an occasional stir. Then strain into a fermenting jar, and fit an air lock. Let it stand until fermentation ceases and the wine clears, usually in about three months, then siphon off into fresh, sterilized bottles.

BLACKCURRANT, RIBENA (3)

One 12 oz. bottle of Ribena Blackcurrant juice will in fact make one gallon of wine. Dissolve 3 lb. of sugar in some warm water, and pour into a 1-gallon jar, then add the bottle of blackcurrant juice and three-quarters fill the jar to the shoulder. Then add your chosen wine yeast, or a level teaspoon of Heath and Heather granulated yeast. The merest trace of acid, one-third of a teaspoon of citric acid, and a pinch of yeast nutrient should also be added. Insert the fermentation lock and stand the jar in a warm place for

fermentation to get under way. When the first vigorous fermentation has died down after a fortnight or so, top up the jar with water to the bottom of the neck, and reinsert fermentation lock; then continue with the fermentation in the usual way.

BROAD BEAN WINE

. . . and you just must try this most unusual and astonishing wine for which the recipe comes from Mr. C. J. Padwick, of 16 Clarendon Avenue, Andover. This recipe produces a light, dry wine of superb quality, hard as that may be to believe!

Ingredients:

4 lb. broad beans	¼ lb. raisins
(shelled)	Yeast and nutrient
1 gallon water	1 lemon
2 ¾ lb. sugar	

Method:

Mr. Padwick writes: Use beans that are too old for normal culinary purposes. To 4 lb. of shelled beans add one gallon of water and boil slowly for one hour. It is essential that the skins do not break or you will have difficulty in clearing the wine. Strain off the liquor and make up to one gallon with boiled water. For a dry wine add 2 ¾ lb. of sugar, the juice of one lemon and ¼ lb. of raisins. When sufficiently cooled add the yeast, and allow five days for the first fermentation. Remove the raisins after this period, fix the airlock and from then on treat as any other wine. By careful use of the hydrometer more sugar can be added at stages, but I do not recommend this as a sweet wine.

CHERRY WINE

Ingredients:

6 lb. black cherries	1 gallon water
4 ½ lb. preserving sugar	Yeast and nutrient

Method:

Crush the cherries (without breaking the stones) and then pour the boiling water over them. Leave to soak for 48 hours. Strain through two thicknesses of muslin. Bring the juice just to boiling point and pour it over the sugar. Stir until the sugar is dissolved. Allow to cool and then sprinkle the yeast on top and stir it in. Cover closely and ferment in a warm place for 14 days, then put into fermenting bottle and fit trap. Siphon off when finished and clear into clean bottles.

HONEYSUCKLE WINE

Ingredients:

2 pints of honeysuckle blossom (pressed down lightly)	1 lemon
3 lb. sugar	1 orange
4 ozs. raisins	1 Campden tablet
	1 gallon water
	Yeast and nutrient

Method:

The flowers must be fully open, and dry. Wash them in a colander, pour the water (cold) over them, and stir in two lbs. of sugar, the minced raisins, and the citrus fruit juice. Add the crushed Campden tablet. Stir well, and next day add the yeast (a Sauternes yeast is suitable) and the nutrient. Ferment for a week in a warm place, stirring daily, then add the remaining sugar and stir well. Strain into fermenting jar and ferment, rack and bottle as usual. Use ½ lb. sugar less for a really dry wine.

MARIGOLD WINE

Ingredients:

3 quarts marigold flowers (no stalk)	1 gallon water
2 lemons	Yeast
3 lb. preserving sugar	Yeast nutrient

Method:

Bring the water to the boil, dissolve the sugar in it, and allow to cool. Add the crushed flowers, the juice and rind of the lemons (being careful to include no white pith), the yeast nutrient, and yeast (prepared wine yeast or a level teaspoonful of dried yeast). Leave in a warm place, closely covered, for a week, stirring twice daily, then strain into a fermenting jar, insert a fermentation lock, and leave in a fairly warm place to finish. When fermentation ceases and wine has cleared siphon off into clean bottles and keep in a cool place for at least six months before drinking.

MARROW WINE

Although the recipe which advocates filling a marrow with brown sugar to make Marrow Rum is one which appeals by its novelty I have never yet tasted any made by this method which has been successful, unless the recipe has been considerably adjusted. Usually the result is far too sweet. You will find this recipe for Marrow Wine far more successful:

Ingredients:

5 lb. ripe marrow	2 lemons
3 lb. white sugar (or brown, if you wish a rum colour)	1 oz. root ginger
Yeast and nutrient	2 oranges
	1 gallon water

Method:

Grate the marrow and use the seeds, slice the oranges and lemons, bruise the ginger, and put all into a jug or crock. Pour over the boiling water and when cool add the yeast. Allow to stand for five days, closely covered, stirring frequently, then strain and dissolve the sugar in the liquid. Either put it into a fermentation jar and fit trap, or keep it closely covered and then ferment in the usual way. When it clears siphon it off the yeast. It should be ready after about six months and can then be bottled.

MEADOWSWEET WINE

Ingredients:

1 gallon meadowsweet flowers (heads only) or 1 packet dried heads (Heath and Heather)	¼ pint strong tea 1 teaspoon citric acid 1 gallon water 1 lb. raisins Yeast and nutrient
3 lb. sugar	

Method:

Place the flowers, chopped fruit and sugar in polythene vessel, pour in the boiling water, and stir well. When cool add the citric acid, tea and yeast nutrient. Introduce the wine yeast and ferment on the pulp for 10 days, stirring twice daily and keeping it closely covered. Then strain into fermentation vessel and ferment, rack, and bottle in due course.

MORELLO CHERRY WINE

Ingredients:

8 lb. cracked and windfall Morello cherries	3 ½ lb. preserving sugar (approximately)
1 gallon water	Yeast and nutrient

Method:

Stalk and wash the fruit, place in a crock, and add one pint of cold water to each pound of fruit, and then one crushed Campden tablet (per gallon). Lastly add a level teaspoonful of dried yeast. Leave for 10 days, keeping closely covered, but stir well each day and mash the fruit with the hands.

To strain it is a good plan to tie muslin over another pan, tying it on. Then, by standing a colander on two laths over this, the bulk of the fruit is retained in the colander and the liquor enabled to strain through the muslin more easily. Do not squeeze or hurry the process.

Measure the liquid, and to each quart add 1 lb. sugar; stir well till dissolved. Leave for four days in a warm place, still covered, then put into fermenting bottles and fit traps. When fermentation has finished and wine has cleared, rack off into clean bottles and keep six months before using.

PLUM WINE

Most plums will make good wine, but generally speaking Victoria plums have been found to be the most satisfactory. Even they sometimes produce a wine, which is somewhat lacking in body, and many winemakers, to counter this plum failing, are in the habit of adding a pound of grain (wheat or barley) to the recipe.

Ingredients:

6 lb. plums (before stoning)	Yeast
3 ½ lb. sugar	1 gallon water

Method:

Cut the plums in half, and crush them in your hands. Take half of the water, bring it to the boil, and then pour it over the fruit pulp. Leave it for four or five hours, then strain, and add the other half of the water to the pulp. Strain the two lots of juice and you should have about a gallon of really clear juice. Bring this to the boil, and then pour it over the sugar, stirring to dissolve. Allow the liquor to cool to 70 degrees F. then add the yeast (preferably a Bordeaux, Tokay or Sauterne wine yeast, but failing that ¾ oz. baker's yeast or a level teaspoon of granulated yeast), pour the whole into your fermenting vessel, and fit an air lock. When the wine begins to clear, siphon it off for the first time, and when all fermentation has finished, rack it again into clean bottles and cork.

RASPBERRY WINE

If ever you can persuade yourself not to eat raspberries, but to make wine with them instead, here is an excellent recipe:

Ingredients:

4 lb. raspberries	1 gallon boiling water
3 ½ lb. sugar	Yeast and nutrient

Method:

Bring the water to the boil and pour it over the fruit; then leave it to cool. Mash the fruit well with the hands, or with a wooden spoon, then cover it closely and leave for four days, stirring daily. Strain through at least two thickness of butter muslin on to the sugar, and stir thoroughly to dissolve. Add a good wine yeast (Burgundy, Port or Sauterne is best), $\frac{3}{4}$ oz. baker's yeast, or a level teaspoon of granulated yeast, and stir well in. Leave for 24 hours, closely covered, in a warm place, then put the liquor into your fermentation vessel, and fit trap. Ferment it right out, and when it clears, siphon the wine off the lees into clean bottles.

RASPBERRY AND REDCURRANT WINE

Ingredients:

4 lb. raspberries	Yeast and nutrient
4 lb. redcurrants	Sugar

Method:

Wash the fruit, rejecting any which are damaged, and press out all the juice. (If a press is not available use a plate and colander stood on laths over a crock.) Boil the squeezed pulp in three times its own volume of water for two hours, and then strain on to the original juice. The pulp should be squeezed dry and this liquid also added. Measure the total liquid thus obtained and to each gallon add four lb. sugar, and then the yeast (when the liquor has cooled to blood heat). Put into fermenting bottle, filling to shoulder to allow space for the vigour of the primary fermentation, but keep a little liquor aside in a covered jug with which to "top up" once the initial ferment is over. Fit fermentation trap and leave until fermentation is finished. Then siphon off and keep for six months before final bottling.

ROSE PETAL WINE

Many gardens have masses of rose-petals which, In the normal course of events, would finish up on the compost heap. But why not take advantage of their glorious scent and make this most unusual wine? All you need is:

Ingredients:

2 quarts rose petals (the stronger scented the better)	2 $\frac{1}{2}$ lb. white sugar
1 lemon	Yeast
1 gallon boiling water	Yeast nutrient

Method:

Bring the water to the boil, and add the sugar, rose petals, and juice of the lemon. Stir well, and when it has cooled to 70 degrees F. add the yeast (a G.P. wine yeast or a level teaspoon of granulated yeast) and a yeast nutrient. Leave to ferment for a week, stirring daily, and keeping closely covered. Then strain into a fermentation jar and ferment until finished. A wine made in this way will normally have good colour, if coloured roses are used; if less colour is required the petals should be strained from the liquor three days earlier.

STRAWBERRY WINE

Ingredients :

4 lb. strawberries	½ teaspoon grape tannin
3 lb. sugar	Yeast and yeast nutrient
1 tablespoon citric acid	Water to 1 gallon

Method :

Take the stems from the strawberries, and wash the fruit. Mash the berries well, and mix with the sugar and 2 quarts water. Leave for 24-36 hours, then strain liquor into fermenting jar ; add a further quart of water to the pulp, mix well, and immediately strain, again, then add the acid, tannin, yeast nutrient and yeast, and make up to 1 gallon with cold water. Stir thoroughly, fit trap, and continue as usual.

August

CARROT WINE

. . . a readily available and very popular drink, with both "kick" and flavour . . .

Ingredients:

6 lb. carrots	1 lb. wheat
1 gallon water	Yeast and nutrient
4 lb. sugar	2 lemons
1 tablespoonful raisins	2 oranges

Method:

Wash the carrots well but do not peel. Put into the water and bring to the boil; then simmer gently until the carrots are very tender. Use the carrots for food, and strain the water. Make up to one gallon. In a bowl put the sugar, sliced oranges and lemons and pour over the hot liquid. Stir until the sugar is dissolved, and then stand until lukewarm. Then add the chopped raisins and wheat and sprinkle the level teaspoonful of granulated yeast on top. Leave to ferment, closely covered, for 15 days, stirring daily. Then skim, strain and put into fermenting jar. Fit trap and leave until it is clear and stable. Then bottle. Keep almost a year (from the start of the fermentation) before drinking.

"FOLLY," OR VINE PRUNINGS WINE

Those of you who are growing vines—and all amateur winemakers should, or they miss a great deal of fun and enjoyment—will have not only grapes (in September) but, throughout the summer, a plentiful supply of vine prunings and leaves as the growing vines are cut back to ensure that the maximum nutrition goes into the bunches of grapes. Do not waste these prunings and leaves; they will make excellent wine! Cut only the green shoots and not ripe wood or the vine will "bleed."

Ingredients:

8 pints boiling water	3 lb. white sugar
5 lb. leaves and tendrils	Yeast and nutrient

Method:

Put the cuttings and leaves into a bowl and pour on to them the boiling water. Let this stand for 48 hours, but turn occasionally to submerge top leaves and keep prunings well under water. Keep crock closely covered. Pour off liquid and press out remaining leaves and tendrils. "Wash" the leaves with a pint of water and press again. Dissolve the sugar in the liquid, add the yeast and yeast nutrient, and pour into fermenting vessel and fit trap. Ferment right out in the usual way and siphon off when clear.

POMEGRANATE WINE

Ingredients:

10 pomegranates	1 lemon
½ lb. barley	Yeast and nutrient
3 lb. sugar	1 gallon water

Method:

Take all the seeds out of the pomegranates and meanwhile bring the water to the boil, with the barley in it. Simmer for about five minutes; then strain on to the inside of the pomegranates, the sugar, and the juice of the lemon. Stir well. When cool add the nutrient and yeast. Ferment, closely covered, on the pulp for five days, then strain into fermenting jar. Bottle the wine when it clears. An excellent medium table wine.

GINGER BEER

If you wish to be popular with the kiddies during the holidays, try making them some ginger beer . . .

Ingredients:

2 lb. sugar	1 gallon water
2 lemons	1 level teaspoon granulated
1 ¼ ozs. well-bruised root	yeast
ginger	¼ teaspoon cream of tartar

Method:

Put into a large bowl or jar the sugar, the rinds (thinly peeled) and the juice of the two lemons, and the well-bruised ginger. Add the squeezed halves of the lemons to the water as it comes to the boil. When it reaches boiling point, pour it over the ingredients in the bowl. Remove lemon halves, stir well, and cover. When tepid add the yeast, previously dissolved in a small amount of the warm liquid. Use a small bottle for this, dropping crumbled yeast in and shaking it to dissolve; leave it half-an-hour or more before adding it to the liquor. Lastly stir in the cream of tartar. Cover and leave for 24 hours. Strain and bottle, and tie down the corks. NEVER use screwstoppers or the bottles may burst. Store in a cool place and drink fairly soon. Take care when opening the bottles, or they are apt to froth over.

PEACH PERFECTION

This is a recipe by Mrs. Cherry Leeds, of Twickenham, for a peach wine which is so superb—and *cheap*—that we give the fullest possible instructions . . .

It sounds extravagant, but it is not. Keep an eye on the greengrocers and you'll see that in August (usually about the first fortnight) peaches come right down in price, to 6d. each or even less. The wine works out at about 1/4d. a bottle.

Mrs. Leeds uses a Kitzinger sherry or Tokay yeast.

TO MAKE 10 GALLONS

Ingredients:

30 lb. peaches	3 oz. citric acid
32 lb. sugar (10 Demerara)	1 ½ teaspoon tannin
Boiling and boiled water	3 oz. Pectin enzyme

Method:

Wipe peaches and remove the stones; drop into large container such as a polythene bin. Scrub hands well and squeeze the peaches until well mashed. Well cover with boiling water and leave covered overnight.

The next day stir in the Pectin enzyme and cover well. On the third day strain through muslin, twice if possible to reduce sludge, and put into the 10-gallon jar; add citric acid, tannin and nutrient.

At this point it is a simple matter to place the jar or carboy into the position it will occupy during fermentation. Put 20 lb. of sugar into the large container and add sufficient. boiling water to dissolve, and when cool add to the jar. Then the level of the liquid is brought up to the turn of the shoulder of the jar with boiled water. Open the yeast bottle, pour in, and fit fermentation lock. The gravity at this stage will be about 100; the original gravity is almost invariably 25-30. Fermentation will start on the third day if the temperature is sufficient (70 degs. - 75 degs. F.).

The rest of the sugar is added in stages from now on, the first addition of four pints of syrup when the gravity is 30, that is, roughly, after two weeks. The sugar is then added in two-pint lots when the gravity is between 10 and 15 each time. The syrup used is 2 lb. sugar to one pint boiling water and cooled, thus making two pints syrup.

The fermenting period lasts for about seven or eight months, though one can keep it going for a year with small additions of syrup.

The first racking takes place when all the sugar is in and the reading is 10. Some of the wine will have to be removed to accommodate the last two pints of syrup. Stir up the jar and remove half a gallon. Put it by, under an air lock, and this can be used to top up the jar after the first racking. Stir the liquid vigorously with an oak rod once a day for the first few weeks.

Because of the Pectozyme used the wine will clear perfectly and after the first racking will become crystal clear, but don't be tempted to rack again until fermentation has ceased finally. This usually happens when the gravity is about five.

The alcoholic content will be about 18%.

TO MAKE FIVE GALLONS

For the 5-gallon jars use half quantities except the Pectin enzyme—this is 2 ounces—otherwise the procedure is the same.

TO MAKE ONE GALLON

Ingredients:

3 lb. peaches	Saltspoon tannin
1 teaspoon citric acid	3 lb. sugar
½ oz. Pectin enzyme	½ gallon boiling water

Method:

The method is the same but the yeast starter bottle is prepared on the same day as mashing, and the sugar is put in all together, just before the yeast starter.

PEA POD WINE

Despite its somewhat unattractive and prosaic name (a chance here for someone to invent a better one!), this is a light, attractive wine which is a great favourite with many winemakers. Certainly no one can complain that the ingredients are expensive!

Ingredients:

5 lb. pea pods	1 gallon water
3 lb. white sugar	Yeast and nutrient

Method:

Wash the pods carefully, and then boil them in the water until they are tender, then strain and dissolve the sugar in the warm liquid. Add the yeast, and then pour into fermenting vessel and fit trap. Siphon off when wine begins to clear and bottle when fermentation has ceased.

PLUM WINE (or Greengage Wine)

Ingredients:

4 lb. plums or greengages	Yeast
½ lb. barley	Yeast nutrient
4 lb. preserving sugar	1 tablespoon Pectozyme
1 gallon water	

Method:

Grind the barley in a mincer and cut up the fruit, putting both into a crock. Pour over them the boiling water, cover closely, and leave for four days, adding the Pectozyme when cool. Stir daily. Then strain through muslin on to the sugar, add the yeast nutrient, and stir till all is dissolved. Then add the yeast (preferably a Burgundy wine yeast, but failing that a general-purpose wine yeast or a level teaspoonful of granulated yeast). Keep closely covered in a warm place for a week, then pour into fermenting bottle, filling to bottom of neck, and fit air lock. Siphon off for the first time when it clears but do not bottle until assured that fermentation has completely finished.

RED GOOSEBERRY

Ingredients:

3 lb. white sugar	1 gallon water
4 lb. gooseberries	Yeast and nutrient

Method:

Pick the ripe gooseberries on a dry day, choosing large and juicy fruits. Top and tail and mash well in a bowl with a wooden pulper. Add yeast. Pour on the cold water and allow to stand three days, stirring twice a day. Strain well through muslin and dissolve the sugar in the juice. Then put into fermenting jar and fit trap and leave until wine has cleared and fermented out. Then siphon off into clean bottles and cork.

PASSION FRUIT WINE

And this doesn't mean what you're thinking ! The Passion Fruit, or Purple Granadilla, is of the Passifloraceae. The Passiflora, or Passion Flower, is so called because its several parts symbolise the story of the Passion of Our Lord. Two types produce edible fruit. *P. edulis* and *P. quadangularis*, rather like plums.

Ingredients :

4 lb. passion fruit	1 gallon water
½ lb. barley	Yeast and nutrient
3 ½ lb. preserving sugar	1 tablespoon Pectozyme

Method:

As for plum wine.

September

APPLE WINE (1)

This is a truly delicious wine, and although apparently "heavy" on fruit is well worth making. It is strong yet delicately flavoured, with an attractive, faintly "cidery" bouquet.

Ingredients:

24 lb. mixed windfall apples	1 gallon water
3 lb. preserving sugar to the gallon of liquor	Yeast

Method:

Chop the apples into small pieces, put into a bowl, add the yeast and water (the water will not cover the apples). Leave for about a week, stirring vigorously several times a day to bring the apples at the bottom to the top. Keep the pan closely covered and in a fairly warm place. Then strain the juice from the apple pulp. Press the juice from the apples and add to the rest of the liquor. To every gallon add 3 lb. of sugar. Put into cask or glass fermenting vessel and fit fermentation trap, racking when it has cleared. The wine will be ready for drinking within six months, but improves for being kept a year. If eating apples are used it is a good idea to make every tenth pound one of crab apples, and another improvement is to employ a Sauterne wine yeast.

APPLE WINE (2)

Ingredients:

6 lb. apples	1 lemon
3 lb. sugar	Yeast and nutrient
¼ lb. chopped raisins	

Method:

Wash and cut up the apples, skins, brown patches and all. Windfalls will do. Simmer 10-15 minutes in one gallon of water. Strain liquid on to the sugar, and the thinly peeled rind of the lemon. Stir well. When lukewarm add the juice of the lemon, and the yeast creamed in a little of the warm liquid, cover and leave for 24 hours in a warm place, then pour into a fermenting jar, cover with three layers of clean cotton material, or insert an airlock. Leave in a warm place to ferment for four weeks. Siphon off into clean dry storage jar, and add the chopped raisins. Leave six months to mature under air lock. Then siphon off into clean bottles, and cork.

ARTICHOKE SHERRY

Ingredients:

4 lb. artichokes	2 lb. white sugar
1 orange	7 pints water
1 lemon	Respora Sherry yeast
2 ozs. root ginger	

Method:

Slice the artichokes and add the thin peel of the fruit. Bruise the ginger and place all in the water and boil for 30 minutes. Pour liquid over the sugar, and when cool, add the juice of the fruit and yeast. Leave two days closely covered, transfer to jars, fit locks, and leave to ferment out. Then rack and bottle in the usual manner.

ELDERBERRY WINE

Ingredients:

3 lb. elderberries	1 gallon water
3 ½ lb. white sugar	Yeast

Method:

Strip the berries from the stalks by using the prongs of an ordinary table fork (otherwise it is a messy and tedious business), then weigh them and crush them in a bowl. Pour on the boiling water, and then let it cool to about 70 degrees before adding the yeast. Leave three days, stirring daily, then strain through muslin on to the sugar. Pour the liquor into a "grey hen" or dark glass bottle (in clear bottles the wine will lose its colour), but do not fill completely until first vigorous ferment has subsided, plugging the neck with cotton-wool. When the ferment is quieter fill to bottom of neck, and fit fermentation trap. Leave till fermentation is complete—it may be longer than most—then siphon off into clean, dark bottles and keep for six months at least.

GRAPE WINE,

More and more people are now growing their own outdoor wine grapes, particularly in the south of England, and the "*Amateur Winemaker*" has received many requests for "grape wine recipes." The word grape here is really superfluous, since true wine can only be the product of the grape, as the etymology of the word shows (Greek *oine*-vine, *oinos*-wine) and it is fitting that in any book on wine the grape should have pride of place. Many are puzzled as to how to convert their grapes into wine, but in essentials nothing could be simpler.

Firstly, make sure that your grapes are as ripe as possible (the birds will tell you when they are nearly ready, if the vine is unprotected!), gather them, and set to work quickly. All one has to do is to ferment the grape juice, but it is as well to note that, if

making small quantities, with a consequent high degree of wastage, as much as between 12 and 15 lb. of grapes will be required to produce a gallon of wine. About 4 lb. will make one bottle. And, even in one of our sunniest summers, when the sugar content of our grapes will perhaps be higher than usual, it is likely that one must expect to have to add some sugar, if a reasonably strong wine is required. If you use a hydrometer, it is simple to ascertain how much, but if you do not, no matter; the solution then is to aim at a strong wine, say 18 per cent of alcohol by volume, and to continue adding the sugar in small quantities of, say 4 oz. to the gallon at a time, until the ferment is carried as far as it will go, and the sweetness of the wine is to your taste.

Many beginners seem to be puzzled by the difference between white wine and red, and ask whether black grapes can be employed to produce the former. The answer is: Yes. White wine can be made from grapes of either colour, the method being to express the juice and ferment it alone. Red wine, on the other hand, is produced by leaving the skins of the crushed black grapes in the must, so that the colour from them is extracted.

If the skins are left in only one or two days a vin rosé will be produced, if longer, a wine of much deeper colour. This process can usually be continued for about 10 days, but it is unwise to leave it much longer, and the liquid should then be drawn off.

A press, of course, is invaluable, and essential if making large quantities of white wine, but most winemakers will be able to contrive to press enough grapes for one or two gallons without one, by crushing with the hands or a piece of hardwood, or by using boards and weights, or some similar device. For white wine, of course, the grapes must be contained in stout calico or some such material to keep the skins separate.

Aim at a strength of 18 per cent alcohol by volume. If using a hydrometer, express the juice from a few of the grapes and measure the S.G. With English grapes it is likely to be fairly low, about 50 or 60, and to obtain the desired strength you will need to add 32 oz. of sugar. It may be higher, if so, consult this table, given by E. Chancrin in "LeVin":

(If you have no hydrometer, make a mental note of the fact you are likely to have to add up to 2 lb. of sugar to each gallon, but do it by stages, adding 8 ozs. initially and thereafter 4 oz. at a time.)

If you are making wine from grapes for the first time it is unlikely that you will want to bother your head unduly about acidity, for if the grapes are really ripe any slight over acidity can be masked by a little extra sugar once the wine is made. But for the perfectionist it is as well to note that grapes—and certainly English grapes—are likely to be slightly too acid, and probably contain about 1.30 per cent acid, whereas the desirable acidity is about 1 per cent. The experienced winemaker will go to the trouble of correcting this by diluting with syrup, but for our present purpose this is an unnecessary complication.

S.G. of grape juice		Approx. number of ounces of sugar to be added to 1 gallon to increase alcohol to (by vol.)	
	10%	14%	18%
1,050	11	20	32
1,055	9	17	29
1,060	7	15	27
1,065	5	13	25
1,070	3	11	23
1,075		10	21
1,080		8	20
1,085		6	18
1,090		4	16
1,095		2	14
1,100			12
1,105			10
1,110			8
1,115			6
1,120			4
1,125			2
1,130			

WHITE WINE

Discard any mouldy or unsound grapes, remove the stems, and express the juice by means of a press or by crushing with the hands, the fruit being in a calico or sacking bag. If using a press, apply pressure gradually; it is better to repeat the pressing once or twice slowly, than to try to rush it through, for you may only burst the bag and be in trouble.

If using a hydrometer, test the juice and determine how much sugar has to be added; dissolve it in the juice, and pour the juice into your fermenting vessel. (Many winemakers prefer to add only half the sugar at this stage and the remainder two or three days later.)

You can then either (a) rely upon the natural yeast (the bloom upon the grapes, of which sufficient will have passed into the juice, to start fermentation) or, preferably, (b) add one Campden tablet per gallon, and, 24 hours later, a vigorous yeast starter of your own choice. A good yeast nutrient will also help.

Fermentation, in a warm place, will be more rapid than with the usual run of country wines but the advent of chillier weather will slow it down.

If you are not using a hydrometer, of course, add your initial 8 oz. of sugar, and thereafter keep a close eye on your ferment, for it is likely to require further sugar almost every day, although the ferment and sugar consumption will be slower in the latter stages than in the early one.

Thereafter the process is the same as with any country wine.

RED WINE

If using a hydrometer, press a few of the grapes to determine the specific gravity of the juice and how much sugar to add. (If not using a hydrometer, it is best to add at least 1 ¼ lb.)

Remove the stalks of the grapes: place the grapes in a tub or large crock (a cylindrical one is convenient) and crush them by hand or with a piece of hardwood and, if using the natural yeast, add the sugar and yeast nutrient, stirring very thoroughly. If using a special yeast add one Campden tablet per gallon, and 24 hours later stir in the sugar and add the yeast.

Use a disc of heavy hardwood (oak or beech) fitting very loosely in the cylindrical crock, to hold the skins down below the surface of the liquid. Bore holes in it with a 2-in. bit. Each day push this "sinker" down to keep the skins wet. This is important or you may get poor colour extraction and the "cap" of skins may acetify. Keep the crock in a warm place for up to 10 days, according to the depth of colour you require, but not more, then strain off the liquor into your fermenting vessel and add (by stages if not using a hydrometer) the balance of the sugar. If you can, press the pulp to get "just that little extra."

Keep this wine, of course, in an opaque or coloured fermenter to preserve its colour, and thereafter continue as for any ordinary country wine.

MEAD

(by S. H. Pullinger, Alresford)

Take 3-4 ½ lb. of mild honey, amount according to dryness or sweetness of wine required. If a wine yeast is to be used, have it activated and ready in advance.

Bring the honey to the boil in two or three times its volume of water. Stir with wooden spoon until honey is dissolved, or it may burn. Skim off any scum which rises. To the hot liquid add approximately ½ oz. of citric acid and the yeast nutrient. Alternatively, one may use the juice of 4-6 lemons, when only half the yeast nutrient need be added.

Add the rest of the water when convenient, transfer to fermenting containers and add yeast when cool. A narrow neck and fermentation lock are advisable. Since there is a gallon of water and several pounds of honey there will be about nine to ten pints of liquid. This will allow for a full gallon after racking, which should take place when the wine is beginning to clear and a definite layer of sludge can be seen at the bottom. Wine made now would be worth drinking at Christmas, but would be better for keeping.

MELOMEL

(Rosehip Mead)

If you wish to use rosehips for flavouring to make Melomel, as a fruit flavoured mead is called, use about 4 lbs. Boil them in a gallon of water for five or ten minutes, and

when cool mash them with your hands or a piece of hardwood, and strain through butter muslin.

To this add four pounds of honey, the juice of two lemons, and yeast nutrient, and stir until the honey is dissolved. When lukewarm add the yeast and ferment as usual. It is an improvement for this mead to use a sherry yeast and ferment in the sherry manner, i.e., after the first racking (not before) have your fermenting container only seven-eighths full, and use an empty fermentation trap, the end of which can be lightly plugged with a small piece of cotton-wool, thus exposing the mead to air but preventing the entrance of any vinegar flies, allowing a degree of oxidisation. But you can also use an ordinary wine yeast and ferment and mature throughout in the usual way if you wish.

To make Metheglin use 4 lb. honey, 1 oz. hops, and $\frac{1}{2}$ oz. root ginger to the gallon, or with the same amount of honey and water, 2 cloves and $\frac{1}{4}$ oz. cinnamon bark, or one-third of an ounce of caraway seeds.

Marjoram, balm, mace, lemon and orange peel, cinnamon, are also flavourings which can be tried, but it is as well not to overdo them.

BLACKBERRY WINE

Ingredients:

4 lb. blackberries

Yeast

3 lb. granulated sugar

Yeast nutrient

Method:

The fruit should be picked when ripe and dry on a sunny day. Wash it well, being careful to remove any of the small maggots sometimes found in blackberries. Place the fruit in a crock, and crush it with a wooden spoon. Pour over it the gallon of boiling water. Stir well, allow to become lukewarm (about 70 degrees F.), then add the yeast. Cover closely and leave for four or five days, stirring daily. Strain through two thicknesses of muslin or a nylon sieve on to 3 lb. of granulated sugar and add the yeast nutrient. Stir well to make sure that all is dissolved. Pour into dark fermenting jar or "grey hen," filling to shoulder, and fit fermentation trap. Keep the spare liquor in a smaller bottle also fitted with a trap or plug of cotton-wool. When the ferment quietens sufficient for there to be no risk of it foaming through the trap (after, say, a week) top up with the spare wine to the base of the neck and refit trap. Leave until it clears and then rack for the first time.

MEDLAR WINE

Ingredients:

6 lb. medlars	1 tablespoon Pectozyme
3 lb. sugar	Yeast and nutrient
½ teaspoon grape tannin	Water to 1 gallon

Method:

Chop the fruit and pour over it two quarts boiling water ; stir in 1½ lb. sugar, and 1 quart cold water. Leave till cool, then add ingredients. Cover closely and leave in warm place. After three days strain into fermenting jar and top up to bottom of neck with cold water. Fit trap and continue as usual.

CIDER OR PERRY

Cider is made from apples, perry from pears.

Strictly speaking, only natural sugar of the fruit should be employed and no sugar should be added.

A press or juice extractor is essential. Put the fruit in a tub or polythene dustbin and crush it with a "masher," a heavy balk of timber. Then express the juice by means of a press or by wrapping the fruit a little at a time in a stout cloth and running it through a mangle. Collect the juice in a jar, stand it on a tray in a warm place (about 70 degrees F.) and add yeast. Invert a small glass over the top of the jar. For a few days the jar will froth over and must be kept topped up, but when the ferment quietens fit a fermentation lock and proceed as for any other wine.

SPARKLING MEAD

Ingredients:

3 lb. honey (preferably of a mild flavour)	1 gallon water
Good mead or wine yeast (say Maury)	Yeast nutrient

Method:

Bring the water to the boil for a minute or so, and then allow it to cool to 120 degrees F. Warm up the honey meantime to the same temperature, and then mix the two, stirring well to dissolve the honey.

Allow the honey liquor to cool to 70 degrees F. and then add the required amount of a yeast nutrient and the pre-prepared yeast culture. Failing this, one can use a level teaspoonful of granulated yeast, but there is then a risk if racking should happen to be delayed later on, of spoiling the delicate mead flavour. Pour the liquor into a fermenting jar, filling it to the bottom of the neck, and keep the surplus in a covered jug nearby. Put

both vessels in a warm place (65-70 degrees F.). As the fermentation froths out of the jar, as it may do, top up from the jug. When the vigorous ferment slows down, and froth ceases to form, fill the jar to the bottom of the neck, fit an airlock, and clean the exterior. When fermentation stops completely move the jar to a cold room and leave it there for a fortnight or three weeks before siphoning the mead off the lees, and into a clean jar. Use a rubber bung or a waxed cork but do not wire it down. The following March (after roughly six months' storage) siphon the mead off the lees again and to the gallon add 2 oz. honey (or white sugar) dissolved in $\frac{1}{4}$ pint of water, boiled and cooled as before. Mix thoroughly and bottle, using strong bottles (of the champagne type, if possible), cork, and wire or tie the corks down.

Note that honey is usually deficient in trace minerals and is sometimes difficult to ferment. It is therefore important to use a yeast nutrient.

October

MULBERRY WINE

Ingredients:

3½ lb. mulberries	1 gallon water
2½ lb. sugar	4 ozs. raisins
1 Campden tablet	Yeast and nutrient

Method:

Wash the mulberries, having removed the stalks, and chop and mince the raisins. Pour on the boiling water; when cool add crushed Campden tablet, half the sugar, the nutrient, and the yeast. Stir well. Ferment for four days on pulp, then strain, add remaining sugar, and ferment, rack and bottle in usual way. A Bordeaux yeast is preferable.

PEAR WINE

Ingredients:

5 lb. pears	1 gallon water
3 lb. white sugar	Yeast; yeast nutrient
2 lemons	

Method:

Really ripe pears, even "sleepy" ones, are best for your purpose. Do not bother to peel or core them, but chop them, being careful to save any juice, put them into a large saucepan, and add the water and any juice. Bring slowly to the boil, and simmer gently for not more than twenty minutes, or the wine may not clear later. Strain the liquor off into a large crock on to the sugar, and add the juice of the two lemons to supply some acid, and yeast nutrient, since pears are deficient in both. When the liquor has cooled to blood heat transfer to a fermenting jar, add a wine yeast or a level teaspoonful of granulated yeast, and fit air lock, for contact with air is not only risky because of possible infection, but also because it may cause an unwanted brown discolouration. Do not fill the jar to the bottom of the neck but keep a little of the liquor aside in a closely covered jug or another air-locked bottle, to be added when the first vigorous fermentation has quietened and there is no longer risk of the wine foaming out through the trap. An excellent wine can be made in this way, but if you have a fondness for dry wine, for which pears are particularly suitable, cut the sugar down until the original gravity of the liquor is about 1090, or 2 lb. 3 ozs. per gallon.

ROSEHIP WINE

Ingredients:

2 ½ lb. rosehips or ½ lb. dried rosehips	1 gallon boiling water Yeast; yeast nutrient
3 lb. white sugar	

Method:

The best time to gather your rosehips, of which there are usually plenty in the hedgerows, is immediately after the first frost. Wash them well, and either cut them in half or crush them with a piece of wood or mallet. (This is unnecessary with the dried rosehips.) Put the sugar into a crock, then the crushed rosehips, and pour over them the boiling water. Stir well to dissolve the sugar. When the liquor has cooled sufficiently for you to be able to put your finger in it comfortably, add yeast (a general-purpose wine yeast, or a level teaspoonful of granulated yeast) and, preferably a yeast nutrient. Leave in a warm place, cover closely for a fortnight, and stir daily. Then strain through a jelly bag or two thicknesses of butter muslin into a fermentation jar and fit air lock. When the wine clears (after about three months) siphon into a fresh jar, and leave for a further three months before racking again and bottling. Since the only main ingredient which has to be bought is the sugar, this is a most economical wine to make, and I am told that the hips contain a high proportion of Vitamin C, so it is probably beneficial as well!

Rosehip Syrup provides an easy way of making wine too. And a 6-oz. or 8-oz. bottle is sufficient to make a gallon. Brands commonly available are Delrosa (in 6-oz. and 12-oz. bottles), Hipsy (in 8-oz.) and Optrose (8-oz. and 14-oz.). Merely bring the water to the boil, add the syrup and sugar, and stir well to dissolve. Cool to 70 degrees F., and add the yeast and nutrient. Pour into fermenting jar and fit airlock. Leave in a warm place. After a week top up to bottom of neck with cold boiled water and refit lock. Ferment, rack and bottle in the usual way.

ROWANBERRY WINE

Ingredients:

½ gallon of rowanberries	1 lb. raisins
1 gallon water	Wine yeast or a level teaspoonful of granulated yeast
3 ½ lb. sugar	
½ lb. wheat	

Method:

Pour the boiling water over the berries and let it stand four days, then strain. Put the sugar, chopped raisins and wheat into the liquid and stir until the sugar is dissolved, then add the yeast and nutrient. Leave to ferment 16 days, closely covered, then strain into fermenting jar and fit trap. When it clears, siphon into bottles, corking lightly at first.

RED TABLE WINE

Ingredients:

10 lb. elderberries

10 lb. raisins

4 lb. sugar

Nutrients

Beaujolais yeast starter

Water to 4 ½ gals.

Method :

Crush the elderberries and strain off the juice. Leach the pulp by adding 1 gallon of boiling water, stirring for 5 minutes and then straining off the pulp. Repeat this treatment with a second gallon of boiling water. Add the raisins and nutrients to this elderberry extract followed by another 1 ½ gallons water. When cool add the yeast starter and ferment on the pulp for four days. Strain off the pulp and press lightly. Add the sugar, stir until completely dissolved and make up the volume to 4 ½ gallons with water. Thereafter continue as usual with fermenting, racking and bottling.

SUGAR BEET WINE

Ingredients:

4 ½ lb. sugar beet

9 pints water

2 lb. 2 oz. sugar

1 oz. bruised ginger

Yeast

Yeast nutrient

Method:

This is a recipe devised two or three years ago by Cdr. I. Mudie, of Chilbolton, and it made a sturdy dry wine of 15.4% alcohol by volume.

Wash or scrub the beet, slice them and boil with the ginger in 7 pints of the water for 1 ½ hours. Then strain on to the remaining 1 ½ pints of cold water. If you wish you can press the beet (as I did) thus obtaining an extra half-pint of liquor. To this add 2 lb. 2 oz. of sugar and boil in for three-quarters of an hour. Allow to cool until tepid, then pour into fermenting jars, add yeast and nutrient, and fit fermentation traps. Leave for three months, then siphon into fresh jars or bottles. A warming wine for winter nights !

November

APRICOT WINE

Ingredients:

2 lb. dried apricots
1 lb. wheat
3 lb. white sugar
½ cup tea

2 lemons (Juice only)
Madeira wine yeast (or
level teaspoonful
of granulated yeast)

Method:

Cut up the apricots, put into one gallon of water, and bring to the boil; simmer for half-an-hour, then strain (without pressing). Add the other ingredients to the liquor and, when cool enough, add the yeast, and ferment for three weeks, closely covered, in a warm place, stir daily. Strain into a fermenting bottle, make up with cold water to one gallon, fit air lock, and ferment for a further month. Then strain, bottle, and cork tightly.

CELERY WINE

Ingredients:

4 lb. celery (green and white)
1 gallon water

3 lb. sugar
Yeast; yeast nutrient

Method:

Chop up the celery into short lengths and boil it in the water until it is tender to extract the flavour. Strain (if you like you can use the cooked celery as a vegetable) and stir in the sugar. If you require wine of a golden colour use Demerara instead of white. Then, when you are sure all the sugar has dissolved, allow the liquor to cool to 70 degrees F. before adding the yeast (a G.P. wine yeast or a level teaspoon of granulated yeast) and yeast nutrient. Keep in a crock or bowl, closely covered, in a warm place for four days, then stir well, transfer to fermenting jar, fit fermentation lock. Leave until it clears, then siphon off the lees. Leave until fermentation has completely finished, there is a firm sediment, and wine is really clear, before siphoning into clean bottles as usual. The slight bitterness of this wine makes it an excellent aperitif.

CLOVE WINE

Ingredients:

1 oz. cloves	3 lb. Demerara sugar
1 gallon water	3 lemons
1 oz. ginger	Yeast; yeast nutrient
1 Seville orange	

Method:

Grate the peel from the orange and lemons, avoiding the white pith, and put it in a small muslin bag with the cloves and bruised ginger. Bring the water to the boil, drop in the bag and simmer gently for an hour. Then take out the bag, place the sugar in a crock, and pour boiling water over it. Stir to dissolve the sugar, and add the yeast nutrient. Allow to cool to 70 degrees F. then add the yeast, a wine yeast or one level teaspoonful of granulated yeast. Leave closely covered for four days in a warm place, then stir, pour into fermenting jar, and fit air lock. Leave till it clears, then siphon off for the first time into fresh jar and refit lock. When the wine has cleared completely, has thrown a second deposit, and all fermentation has ceased, bottle.

CORNMEAL WINE (or "Golden Dynamite")

Since many home winemakers now seem to be using Messrs. Hidalgo's concentrates, they may care to try this recipe which the firm has evolved:

Ingredients:

2 lb. yellow cornmeal (cornflour)	3 lb. sugar
2 gallons water	1 oz. tartaric acid
Juice of 2 lemons and 3 oranges	¼ oz. ammonium phosphate
3 pints of Hidalgo's red or white grape juice concentrate	¼ oz. ground rice
	2 crushed Campden tablets
	Yeast and nutrient

Method:

Mix all the ingredients together, then add Hidalgo yeast (supplied free with the concentrate) and set aside in a warm place (65-70 degrees F.) to ferment, closely covered, for at least 30 days, stirring once a day. Siphon off, and 30 days later rack off again; it will then be ready to drink.

HOP WINE

Ingredients:

3 ozs. hops	1 orange
1 oz. stem ginger	1 lemon
3 lb. sugar	1 gallon water

Method:

Boil the hops and ginger in the water for one hour, then strain and pour the liquor over the sugar and orange and lemon juice. Put all into a fermenting jar with a wine yeast or a level teaspoonful of granulated yeast and fit trap. When it has fermented right out add $\frac{1}{4}$ lb. of chopped raisins and $\frac{1}{2}$ lb. of loaf sugar and bung tightly. Leave for six months before bottling.

PARSNIP SHERRY (light)

Ingredients:

4 lb. young parsnips	3 $\frac{1}{2}$ lb. white sugar
1 level teaspoon citric add	Yeast and nutrient
2 tablespoonsful malt	1 gallon water

Method:

Scrub the parsnips (which are best lifted after the first frost) but do not peel. Cut into chunks or slices and boil gently in the water until tender, then strain. Stir in the malt, acid and sugar, and when cool add the yeast. Ferment, closely covered, in a warm place for ten days, then put into a fermenting bottle and fit airlock. Siphon it off, and bottle when all fermentation has ceased and wine has cleared.

QUINCE WINE

Ingredients:

20 quinces	2 lemons
3 lb. white sugar	1 gallon water
Yeast	

Method:

Grate the quinces as near to the core as possible, and boil the pulp in the water for 15 minutes (not more, or the wine may not clear subsequently). Strain on to the sugar and add the juice and grated rinds of the two lemons. Allow the liquor to cool before adding the yeast (a wine yeast or a level teaspoonful of granulated yeast). Leave it to stand for 48 hours, closely covered, in a warm place, then strain into fermenting bottle and fit

fermentation lock. Siphon off for the first time when it clears. This wine has a strong, individualistic bouquet, but sometimes ferments for an extraordinarily long time, so extra-careful attention to racking is necessary to stabilise it, with the addition of one Campden tablet per gallon finally.

SULTANA SHERRY

Ingredients:

1 lb. sultanas (or "white raisins")	½ teaspoon citric acid
1 lb. grapes	1 nutrient tablet
2 ½ lb. sugar	Sherry yeast
8 oz. barley	Water to 1 gallon

Method:

Soak the barley overnight in half a pint of (extra) water and the next day mince both grain and sultanas. Bring water to the boil and pour it over grain and fruit, then crush the grapes manually and add. Stir in the sugar and make sure it is all dissolved. Allow to cool just tepid, then introduce the nutrient, acid and yeast. Ferment closely covered for 10 days, stirring vigorously daily, then strain into fermenting jar and fit trap.

SLOE WINE

Ingredients:

3 lb. sloes	6 pints water
½ lb. raisins	Yeast and nutrient
3 ½ lb. sugar	

Method:

Place the sloes in a crock or bowl and pour over them the boiling water. Mash the sloes well, adding the minced raisins, 2 lb. sugar and, when cool, the yeast. Stir well, cover with a cloth and ferment in a warm room for 10 days, stirring each day. Then strain, add remaining sugar, and pour into fermenting jar. Fit air lock and leave in a warm room for four weeks to ferment, then taste. If too bitter, a little more sugar can be added. Refit air lock and store in a cool place to clear for a few weeks. When clear, bottle and store for at least a year before use.

SLOE GIN

Half-fill a clean Kilner jar with pricked clean sloes, adding 4 oz. of caster sugar, and fill the jar up to the top with dry gin.

Place a ring on the top, also the lid, and screw down tightly. Shake, the jar daily until the sugar is dissolved and the liquid has taken on a dark colour, $\frac{1}{4}$ oz. of almond essence can be added after two weeks.

Leave the sloes in the jar for two months in all, shaking up fairly often. When the gin is to be bottled, preferably into a half-size liqueur bottle, the liquid must be run through doubled muslin several times to ensure all particles which would otherwise mar the clarity are kept from the bottle.

December

BEETROOT WINE

Ingredients:

3 lb. beetroot	Yeast and nutrient
3 lb. granulated sugar	Juice of 1 lemon
6 doves	Small piece of ginger
1 gallon water	

Method:

Wash the beetroot well, but do not peel; cut them up and boil them in some of the water until tender but not mushy. Strain on to the sugar, lemon juice, spices, and the rest of the water, and stir until the sugar is dissolved. When the liquor is cool stir in the yeast, then cover closely, and leave in a warm place, giving it a stir each day. After three days strain the liquor through muslin into an opaque fermenting jar or bottle, and fit air lock. When it clears siphon it into dark bottles. (Test it by lifting some out in a glass tube: insert the glass tube in the wine, but not as far as the yeast sediment, press the tip of your forefinger over the top end and you will be able to lift out a "column" of wine clearly showing its condition at various depths). It is important that opaque jars or dark bottles should be used, otherwise on exposure to the light beetroot wine will lose the glorious colour which is its principal feature and turn an unattractive brown. If you have only clear glass vessels, wrap them in brown paper, invert sugar bags over them, or keep them in a dark cupboard.

GINGER WINE

Ingredients:

½ oz. essence ginger	1 oz. burnt sugar
½ oz. essence capsicum	3 ½ lb. granulated sugar
¼ oz. Tartaric acid	9 pints water
20 drops essence lemon	Yeast and nutrient

Method:

Buy the first five ingredients ready-made up from your chemist, but if you are using the yeast nutrient omit the Tartaric acid from it, since it is already in the recipe.

Put sugar in bowl and add boiling water, stir to dissolve sugar, then stir in other ingredients except yeast and nutrient. Stir frequently till tepid, strain into fermenting bottles, add yeast and nutrient, agitate, fit traps.

MIXED DRIED FRUIT WINE

This is a glorious, golden wine which is simplicity itself to make.

Ingredients:

3 12-oz. cartons of mixed dried fruit	G.P. wine yeast
1 lb. wheat	Yeast nutrient
3 lb. sugar	1 gallon boiling water
	¼ oz. citric acid

Method:

Make up a starter bottle two days or so before you need it with half a pint of orange juice—it can be a little diluted to make up the quantity—1 oz. of sugar, a little yeast nutrient and the general-purpose wine yeast. Place it in a temperature of about 70 degrees F.

You can obtain your 12-oz. cartons of fruit (sultanas, raisins and currants) from Woolworths. Tip all the fruit, grain and sugar into a crock, and pour over them the boiling water, stirring to dissolve the sugar. When cool add the contents of the starter bottle and ¼ oz. citric acid, and stir well in. Cover closely and leave in a warm place (65-70 degrees F.) for three weeks, stirring vigorously daily. Then strain into fermenting bottle and fit trap, and rack off for the first time when it clears. This wine can be drunk after six months and is doubly useful in that it can be made at any time of the year.

PARSNIP WINE

Ingredients:

7 lb. parsnips	2 ½ gallons of water
3 lb. sugar to each gallon of liquor	Yeast; yeast nutrient
	2 lemons

Method:

Scrub and scrape the parsnips; then slice them and boil them in the water until tender, but not mushy, or the wine will not clear later. The parsnips can be boiled in half the water, if necessary, and the remaining water added afterwards, warm.

Then strain through a coarse cloth tied over a crock, but do not hurry the process or press the parsnips in any way, for again this may be fatal to the wine's clarity. A thorough, slow, unforced straining is essential. Measure the liquor, add 3 lb. white sugar to a gallon, and finally the juice of the two lemons. Bring to the boil and simmer for three-quarters of an hour. Turn into crock, and when liquor has cooled to 70 degrees F. add yeast and yeast nutrient. Cover closely with a thick cloth and allow to remain in a warm place for ten days, stirring well from the bottom each day. Then strain into fermenting jars or cask, fit traps, and leave for about six months in a cooler place; it should then be clearing. Siphon it off the lees, bottle, and keep six months longer.

Many people have difficulty in clearing parsnip wine, but if you follow these instructions carefully yours will be of brilliant clarity and excellent colour.

SARSAPARILLA WINE

Ingredients:

1 ½ ozs. sarsaparilla	1 gallon water
¾ oz. caramel	1 ½ oz. tartaric acid
3 lb. sugar	Yeast and nutrient

Method:

Infuse sarsaparilla and caramel in 1½ pints boiling water, and add sugar. Allow to cool, add 6 ½ pints cold water, acid, nutrient and yeast. Ferment, rack and bottle in usual way.

WHEAT WINE

Ingredients:

3 ½ lb. Demerara sugar	Yeast; nutrient
1 pint wheat	1 lemon
2 lb. raisins	1 gallon hot water

Method:

Soak the wheat in one pint of the water overnight to soften it, and put it and the raisins through a mincer. Put sugar, wheat, and raisins in a bowl and pour on hot (not necessarily boiling) water. Add the juice of the two lemons, and allow to cool to 70 degrees F. Add yeast, and yeast nutrient. Cover well with cloth and allow to stand for ten days, stirring well daily. Strain, put into fermenting bottle, and fit trap. Siphon off into bottles when clear and no longer fermenting.

Christmas Drinks

ANGELICA LIQUEUR

And here is a recipe for a Christmas luxury, by Mrs Betty Parker, of Whitchurch, Hants:

Ingredients:

1 oz. Angelica stem	1 pint brandy
1 oz. boned bitter almonds	1 pint syrup made with white sugar

Method:

Steep the angelica and almonds in the brandy for a week, then strain off and add the syrup to the liquor. "Improves with keeping—if you can keep it!"

CHRISTMAS GLOW

Ingredients:

1 bottle of one of your red wines	1 cup granulated sugar
1 small glass cherry brandy	2 oz. honey
1 glass brandy	Grated nutmeg to taste
1 sliced lemon	About one-third pint boiling water

Method:

Heat wine, honey, lemon, nutmeg, sugar to near boiling point; then add brandy and cherry brandy and lastly the water. Serve immediately.

CHRISTMAS PUNCH

For those who like punches (and who doesn't at Christmas?) here is an excellent recipe:

Rub eight pieces of lump sugar on two big lemons, collecting all the fragrant essential oil possible. Put the lumps in a bright saucepan with $\frac{1}{4}$ teaspoon of ground cinnamon, $\frac{1}{4}$ teaspoon of grated nutmeg and ground cloves mixed, and a fair pinch of salt. Put in 8 oz. each of brandy and Jamaica rum and add 16 oz. of boiling water. Heat up the bowl, and strain into it the juice of two lemons. Heat up the mixture in the pan just to miss boiling point and strain it through muslin in colander or sieve into the bowl. Now add one pint of a good white country wine—elderflower, gooseberry, rhubarb or apple, preferably sparkling—and serve with a cube of pineapple in each cup.

COOMASSIE

In a small tumbler break the yolk of a fresh egg and mix in one teaspoon icing sugar. Add six drops Angostura, 1½ oz. sherry and half that amount of brandy. Fill glass with shaved ice, shake well and strain. Dust with fresh-grated nutmeg and powdered cinnamon. This approaches a flip.

EGG FLIP

Ingredients:

6 fresh eggs	1 lb. honey
¼ pint fresh cream	6 lemons
½ bottle brandy or rum	

Method:

Wash the eggs carefully and place them in a bowl with the juice of the lemons and one tablespoon very finely grated lemon rinds (avoiding the white pith, which imparts a bitter taste). Cover closely with a clean cloth and allow to stand for 48 hours or until the shells have dissolved into a mash. Then add the cream, honey and brandy or rum and mix vigorously. Bottle immediately and cork tightly.

ORANGE COCKTAIL

Mix: 1 bottle orange wine, 1 wineglass whisky, and a dash of rum.

HOT COFFEE RUM

This is an excellent after-dinner drink for which, if possible, the coffee should be freshly ground, as well as freshly made.

Into a small saucepan put six lumps of sugar, the finely pared rind of two oranges, six cloves, and a stick of cinnamon. Add enough rum to cover the sugar and bring nearly to the boil, stirring gently until the sugar is dissolved. Take care that it does not catch fire.

When ready stir the mixture into six cups of very strong, very hot black coffee and serve immediately.

MILK PUNCH

(Modern version of an 1835 recipe)

Ingredients:

1 quart fresh milk	6 Seville oranges (or six
1 bottle rum or brandy	ordinary oranges and six
1 pint rum (if desired)	lemons)
1 gallon water	3 ½ lb. sugar

Method:

Peel the fruit very thinly, or use a grater, to exclude all white pith, which has a bitter taste, and squeeze out all the juice. Soak the peel in the spirits for four days in a corked large bottle. Put the sugar in a bowl and pour on the water, the milk (boiling, if it has not been previously pasteurised) and the fruit juice. Stir well to dissolve the sugar. Strain through several thicknesses of muslin or a jelly-bag, then bottle. This punch must be drunk within a few days; if you wish to keep it longer than that before serving do not add the water to the last minute, and then add it boiling, since the punch, of course, should be drunk just warm.

PUNCH

Take two or three good fresh lemons, with rough skins quite yellow; some lumps of good sugar; grate a handful of the skins of the lemons, through a bread grater, on to the sugar; then squeeze in the lemons, bruise the sugar and stir the juice well together, for much depends on the process of mixing the sugar and lemons; pour on them one quart of boiling water, and again mix them well together (this is called the sherbet); add one pint and a half of brandy, and the same quantity of rum; stir it up, then strain it through a sieve; put in one quart of syrup, and one quart of boiling water.

RUBY DELIGHT

And here is a novelty most home winemakers will be able to compile, and which is very popular with the ladies:

Ingredients:

½ bottle blackberry wine	Wineglass ginger wine
½ bottle rhubarb wine	Wineglass port wine
½ wineglass whisky	



Ales and Beer

HOME BREW IN PRACTICE

By HUMFREY WAKEFIELD

The brewers of home-made wines are privileged people. They feel it every time they open a bottle of their own vintage. But there is one thing they miss, and that is the privilege of drinking freely, carelessly, thirstily, and above all, daily. A daily drink must be quick to make and to mature, its fermentation must be certain and its materials cheap. And it must be free from that sort of connoisseurship that leads to odious comparisons with classical vintages, and robs the amateur of his carefree approach.

Malt liquors satisfy all these conditions. At their simplest, they can be prepared within a couple of hours, fermented within a week, and drunk within a fortnight. And the finest compliment the maker will be paid is when old men say they have not tasted such a drink since they were youngsters.

In the April 1963 Budget, Mr. Reginald Maudling, the then Chancellor of the Exchequer (whose name shall remain blessed) removed the restrictions upon the home brewing of beer and ruled that henceforth no duty need be paid. So you are free to brew as much duty-free beer at home as you please. But NOT A DROP OF IT MUST BE SOLD, or you are breaking the law.

A home-brewed beer can hardly fail to be better than anything offered for sale over the bar, and it is incomparably cheaper. The foaming head of a good brew, and its amber or garnet lights, will rival any wine for the pleasures of the eye. If you are impatient and cannot wait for it to clear, no matter; it is only yeast you are drinking, and you would pay dearly for that at a chemist's. If you do not like the idea of long drinks, swilled down by the pint on hot days, then make yourself a short one. After all beer can be brewed without difficulty up to 10% alcohol content, that is, the strength of a Frenchman's vin ordinaire; and a wineglassful of this on a winter's day will do the work of tankards of your summer brew.

There is a flavour and a strength of beer for every occasion: with meals, or between meals, or in meals. Strong ale can be used on almost every occasion where a cooking recipe calls for wine, and on many others, such as cooking hams, stews, Welsh rarebits, and so on. To have at your command the whole splendid range of malt liquors you need only understand how to vary the three principal ingredients: fee malt, the herbs employed to give the dominant flavourings, and the sugar, which will decide the alcohol content.

Malt

Malt serves the brewer in three ways; it provides a form of sugar that can be turned into alcohol by the yeast; it nourishes the yeast in the course of its work, and ensures that it does it well; and it likewise nourishes the man who drinks the brew, since it contains a fair amount of unfermentable solids, rich in food value, which survive in the finished drink to give it flavour and body. The hydrometer reading of a finished beer is proof of this: it will not, like a dry wine, fall to zero or below, but stick at between 2 (for a light ale) and 8 (for a heavy stout). In a wine this would normally indicate the presence of unfermented sugar. In a beer it is not sweetness but food that remains behind.

Malted barley grains, like coffee, can be roasted light or dark, and are sold as "Crystal" malt or "Patent Black." Crystal malt gives light and nutty flavours, and colours varying from pale amber to rich brown. Black malt brings a burnt and rather woody taste, and the liquor appears to be black, until you see the garnet-coloured lights in it.

There are several ways of getting the good out of the malted grain. You can "mash" the malt yourself., steeping it in water in a temperature of 130-150 degrees for not less than four hours before straining off the "wort" from the grain, and then boiling it up with hops, or whatever herb you choose. In this method you have the pleasure of handling a raw material no less mysterious than the grape, and you get on the whole a drink of cleaner flavour. Or you can save yourself the trouble (this is important if you are brewing for a daily drink), and buy the malt already extracted. This extract is simply dissolved by pouring over it the boiling infusion of herbs. Malt extract makes excellent light ales with a minimum of work. It also brings within the home-brewer's grasp really strong drinks of the Barley Wine and Audit Ale type, without the cost being in any way excessive. Such heavily malted drinks would be far too dear to form part of one's daily fare, were extraction done at home.

Herbs

Whichever method you use for extracting the good from the malt, the result is the same: the more the malt, the more the body imparted to the finished drink. And the more the body the drink has, the more it will need some bitter herb added to it to counteract the heaviness and keep the palate clean. The vintner is not troubled in this way. Nothing need be added to grape juice, since it contains both acid and tannin which gives wine a natural astringency—but malt contains neither, and so has to have an astringent flavouring added by the brewer. From the beer-drinker's point of view this is an asset. The acidity of grape-wine may well be counteracted in warm countries by the richness of the food served with it. But with plain fare, and in a cold climate, an acid drink does not always lie easily on the stomach. It is not only the high food-value of stout that makes it a good drink for nursing mothers, but its lack of acidity.

You can use what herb you like, so long as it does what you want in the finished drink. The hop has earned first place as partner to malt, throughout its whole range of strengths and flavours, ever since it was brought to England three centuries ago. It is a good preservative. Its flavour when used in small amounts is delicate, fresh and subtle,

while in large quantities its bitterness is never disagreeable. Further, it is a gentle soporific. Sleep follows easily on hopped beer, and an age addicted to tranquillizers should welcome this.

Since no other herb by itself can command all the virtues of hop, experiments with other flavours should not be allowed to displace the hops altogether from your recipe. Spruce oil combines well with hops. It too is a good preservative, but unlike hop, it will tend to clear the head of drowsiness. This, combined with its remarkable cleanness of flavour, makes a drink that will challenge any conventional beer as a refresher. Spruce beer goes back a couple of centuries into English history, and deserves a revival. It is still drunk in Scandinavia, and in Greece even grape-wines are "resinated" as a matter of course, partly to preserve them, partly to give that fresh, resinous tang that is so welcome in a land where flavours are strong, fish plentifully eaten, and much garlic chewed.

Wormwood, the "mugwort" of old country brewers, provided the bitters in beer before the advent of hops. It can still be used to make a good drink, and is most conveniently found in "Heath and Heather's" or those from other suppliers. Here you find a nicely blended mixture including hops and wormwood, and though intended for a non-alcoholic drink, they are all the better used in a more powerful brew. This beer is a fine summertime quencher of thirst, something like a long Vermouth.

Liquorice is used in medicine for soothing rough throats. In beer it gives the illusion of having added body and sweetness, apart from its own peculiar pungency. In fact, it has done no more than coat the tongue. For this reason, those who like a clean taste should avoid liquorice. But it can be useful for taking the edge off a harsh stout, since you cannot (as in winemaking) sweeten a bitter brew with sugar. This will merely renew the fermentation, unless the yeast has been killed by pasteurization, or has already made all the alcohol it can manage. This latter condition is unlikely to be met with in brewing beer, though common enough in winemaking.

Like liquorice, nettle was traditionally used in stouts. An infusion of nettle is faintly salty, like a consomme, and if added to a beer it will certainly need plenty of hops, or the roughness of black malt to give it an "edge" and make it palatable. Salt has the effect of giving "roundness" of flavour, and should in any case be added in small quantities to a brew of beer. But as soon as the salty taste is perceptible, it comes as a disagreeable surprise, and the clean after-taste characteristic of good beer is lost.

The use of old-fashioned flavourings: ginger, dandelion, burdock or sarsaparilla, must be adapted to suit each brewer's taste. Once the principle of balancing bitter against sweet is understood, then there is no reason why these flavours should not make stimulating variations on the original theme of hops.

Sugar

Malt by itself contains enough fermentable sugar to make an alcoholic drink. In fact German law refuses to recognize a malt liquor brewed with added sugar as "beer" at all. But the home brewer is not a purist. He cannot afford to be, with malt the price it is. By adding sugar he can make his beer much stronger than is normally sold over the bar; he can make it keep better; and he has a wide range of new flavours to play with, since each type of sugar will add its own particular fragrance.

Honey is the oldest form of sugar to be used in beer, and is still thought by some to be the best. Nowadays it is a luxury if added in any quantity, and the drink would rank rather as a hop-flavoured Mead. As in Mead-making, the honey should be boiled 10-15 minutes in part of the water going into the brew, to kill unwanted bacteria which would otherwise turn the beer sour.

Then there are the various types of cane-sugar. Of these, white sugar contributes nothing noticeable to the flavour of the drink. Demerara, though dearest, is best, especially for pale, light-bodied beers. Brown moist is cheapest, and makes a darker beer, heavier in body, but not necessarily more alcoholic, since it contains more unfermentable matter. Invert sugar, used commercially in English beers, ferments out quickest of all, and most completely. It makes a good, dry beer, with a slightly cider-like taste. Golden syrup for some reason takes much longer than the other sugars to clear, and tastes faintly of grapefruit. Black treacle or molasses are best kept for medicinal stouts. Its flavour is not clean on the tongue, and needs the roughness of black malt, and plenty of hops, to counteract it.

A whole range of beers can be produced by using malt extract and our table shows four excellent recipes for home brewers to produce beers of varying strength.

These are quite simple, and anyone can produce an excellent, strong beer fully as satisfying as any which can be purchased at "the local."

Five gallons is the most a man can lift conveniently. If women brew, they had better halve the quantities and make 2 ½ gallons at a time. Round figures are used. There is no need for precision, but a hydrometer is worth getting, to let you know what type and strength of beer to expect. Use tap-water. Galvanised wash-boilers are quite safe for boiling up the infusion of herbs; there is no acid formed at this stage, and so no risk of metal poisoning arises. Use Demerara or invert sugar for the lighter brews, brown for the heavier.

The Extract is easier to pour if left in a warm place overnight, and 2 lb. jars are more convenient than 14 lb. tins, but dearer. When pouring extract from a tin, wet the free hand with cold water. The ribbon of malt can then be coaxed back into the tin without sticking to the fingers.

Hops can, of course, be used alone in any of the recipes that suggest other herbs, at the rate of 4-8 oz. to the 5-gallon brew. Compressed hops come in 8-oz. packets which can easily be broken in half to save weighing. If loose hops are used, a good fistful may be taken to weigh about an ounce.

Baker's yeast may be used, but it needs more skimming, and takes longer to clear. Lager and Ale yeast cultures are best left for fancy brews.

The fermenting vessel should be large enough to hold the wort and allow for the "head," say 7-gallon size. It is best made of polythene or stoneware.

Distinguish between stoneware and the old-fashioned red clay crocks which usually have a lead glaze and poison the fermenting brew. Lead glazes are thick and honey-coloured, whereas stoneware glazes are thin and colourless.

Stoneware rings clearly when struck, while lead-glaze vessels, being earthenware, do not.

Beers, of course, can be made to any strength, and opposite we give in tabular form a series of recipes which will enable you to select your own. One word of warning,

it is better to aim at beers of strengths equivalent to those obtaining commercially rather than always producing high-gravity brews, which cause headaches when drunk in quantity, as most beers are.

SUGGESTED RANGE OF HOME-BREWS USING MALT EXTRACT

Recipe	1	2	3	4
Alcohol	3%	5%	7%	9%
Gravity at Start	30	45	60	30
Gravity at Finish	2	0	5	9
Recipe	1	2	3	4
Gallons Water	5	5	5	5
lbs. sugar	3	4	5	6
lbs. Malt Extract	1	2	3	4
Herbs	1 oz.	2oz.	4-6 oz.	6-8 oz.
	Hops	Hops	Hops	Hops
	or Herbs	2oz.		
		Spruce		
		Extract		
Price per pint	2 ½d.	3½d.	4½d.	6½d.
Days to clear	7	14	21	28
Keeps for	Weeks	Months	Months	Years

Use also in each case :

1 Pkt. Dried Yeast, 1 Pkt. Yeast Food,
2 teaspoon salt, or water treatment as
instructed.
Juice of one lemon.

For Stout Boil up ½ lb. patent black malt grains
and 4 oz. flaked barley with the hops,
in Recipe 3 or 4.

PREPARATION

Bring a convenient quantity of water to the boil, 3 gallons if you have a 4-gallon boiler. Add salt, then put in herbs and simmer for 45 minutes. When hops are used, some of the fragrance is lost in the steam. So keep a handful back till the last five minutes of

the infusion. Allow to cool for a few minutes. This gives the herbs time to settle and makes decanting easier.

Put the sugar and malt into the fermenting vessel. Strain the near-boiling infusion of herbs into the vessel, and stir well till all is dissolved with a hardwood stick.

Make up to five gallons with boiled water. Allow to cool. Dissolve yeast food (if used) and citric acid or lemon juice in a little of the brew, and stir in. Put the hydrometer in and note the gravity.

FERMENTING

Sprinkle on the yeast. Tie a cloth or secure a sheet of polythene with elastic over the vessel to keep out the flies. The ideal temperature is 65-75 degrees F., that is, about the range of a room in summertime. Cooler temperatures mean slower fermentation. This is no advantage in beer-making: it merely holds up regular production, so find a warm corner for the brew, or else use some simple heater, in cold weather. A thick foam builds up on the surface within 24 hours; skim this off. It contains impurities which may make the beer slow to clear. Thereafter leave the brew in peace till the yeast has done its work.

With strong beers, however, it is advisable to add the sugar in two doses, or they occasionally "stick" at 1020 or so.

Strong beers take about a week to ferment out, weaker ones three days or so. The hydrometer will tell you the progress. But when the gravity gets low you cannot be sure at what point it is merely telling you about unfermentable solids left in suspension. Your aim is to decant the beer as soon as it is "flat," since the decanting while the ferment is still on can lead to burst bottles. Best then, to watch the surface of the brew. Towards the end of the ferment the bubbles collect in a ring at the centre. Then the surface, which is cloudy while the yeast is till active, begins to clear. This means that the yeast has no more sugar to work on, and is beginning to sink down. Then is the time to bottle.

BOTTLING

Having made your home-brew you then come to the satisfying job of bottling it.

Should it be bottles, or tap-jars? One four-gallon tap-jar takes no longer to clean and sterilise than one bottle. It allows you to draw off your beer in half-pints, and that is useful when brewing strong. But the drink will be "draught" in character, however lively it may be, since all the gas is spent immediately in forming the head. A truly sparkling drink can only be made in screw-top bottles.

Apart from looking good, and lightening a heavy brew, the sparkle sends the alcohol to your head quicker. And a bottled drink will clear sooner, since the yeast has not so far to fall. But the labour of cleaning and sterilising is multiplied thirty-fold. It is a matter of choice.

This is the quickest way of cleaning: prepare a stock solution of potassium metabisulphite, by dissolving $\frac{1}{4}$ lb. in a quart of hot water. Keep it handy in a stoppered flagon. Take all the stoppers out of your bottles, and set aside those with perished washers. Take off these washers. Stretch the new washers over the ends of all the stoppers. Then take each one in turn and insert a spike (say the outside prong of an old

fork) between the washer and the stopper. Then, by turning the stopper round and round, the washer can be worked down to its proper place.

Next take the bottles. Rinse each under the cold tap, emptying the water out by holding upside down and swirling round with a vigorous rotary movement. This forms a whirlpool inside, which allows the air to get in and the water to fly out. Take a jug and in it mix two ounces of your stock sulphite solution in a pint of water. Pour this sterilizing mixture through a polythene funnel from one bottle to the next. From the last bottle, pour it back into the jug, and drop all the stoppers in. Next give the stoppers and each bottle a quick rinse under the tap to remove any traces of sulphite.

Keep the remains of the sulphite solution handy for sterilizing the siphon before and after use. You will find the whole job is made much easier by fitting to the cold tap a length of hose-pipe equipped with a lever-spray nozzle. The bottles are now ready to fill.

SIPHONING

You want to have the suction end of the siphon just above the sediment at the bottom of the fermenting vessel. The best way to do this is to have a length of glass tube ($\frac{1}{4}$ in. bore) with a U-bend at one end, to bring the lower opening of the tube some $\frac{3}{4}$ in. above the bottom of the U. This tube, with your polythene piping fitted at the other end can be pushed straight down into the vessel till the U-bend rests on the bottom. The opening will then be sucking up the brew just above the level of the sediment. A chemist will do this bit of glass-work. Failing that, you can buy a good adjustable siphon ready-made.

PRIMING

Put the empty bottles in their crates, and fill each in turn from the siphon, up to the shoulder, and not beyond, or you may have trouble with foam when you come to unscrew the stopper. When all are filled, "prime" each one with one level teaspoonful of caster sugar. Use a funnel to get it down the neck cleanly, and tap the stem of the funnel each time, to make sure the whole dose goes down.

This priming sugar starts a further slight fermentation, enough to give the mature drink a good sparkle. If more sugar than this is put in, you may lose the beer in foam, or burst the bottle.

The same is true if you bottle it before the fermentation in the first place has finished. Wet the stoppers, to allow the washers to slip when you tighten them, screw down hard, and give each bottle a good shake to dissolve the sugar. Store upright in a cool dark place.

TAP JARS

In this case it is advisable to fill to the shoulder only (this gives you four gallons) and put any surplus brew in bottles. The space left in the shoulder gives room for the gas pressure to build up. Otherwise, you risk blowing out the tap, or bursting the jar.

To prime, make a syrup by dissolving 2 lb. of caster sugar in one pint of boiling water. Allow to cool and keep stoppered up in a sterilized flagon. For a 4-gallon jar, take

3 oz. of this syrup and add to the brew in the jar while you are siphoning. This makes enough gas to drive about half the contents out under pressure. You may experiment with more, but it is hardly worth the risk, and with heavy beers it is as well to reduce the priming sugar to 1-1½ lb. to the pint, or you may even have a jar burst. It will depend on the strength of the jar, so we cannot hold ourselves responsible!

Once the jar is filled and primed, wet the rubber washer of the stopper, and screw down tight. The washer should be seen to flatten and bulge. See that the tap is hammered well home. When the gas pressure builds up the tap may leak a little. This usually stops after a few days as the corks take up the moisture and swell. If they go on leaking, the only cure is to change them. The cork shive is often hard to fit over the stem of a new tap. Soak it, but not the tap, overnight in your sterilizing solution. It should then be soft enough to coax up to the shoulder of the tap, where it must be before you try to drive the tap home. If it will not go, then rasp off a little of the taper round the shoulder of the tap. There is plenty of wood to spare at that point.

If the tap grows mould, and it is almost bound to, wash it off with a strong sulphite solution.

When the pressure fails, and no more beer can be drawn off, unscrew the stopper, reprime, and wait for the brew to clear. If you have only a gallon or less left in, better draw it off into pint bottles, and prime as usual. When the tap jar is empty, clean out with water, swill it around with sulphite solution, and refill, either with your next brew or with water. If left empty, the tap and corks will dry out and become unusable.

CORRECT MASHING

Many people do not realise that when using malt, as distinct from malt extract, one of the most important factors in the production of good quality home-brewed beer is the correct "mashing," or extraction of maltose from the malt.

In this the temperature of the water plays a most important part. The operating temperature of the first fermentation should be between 130 degrees and 150 degrees F. It should never rise above 150 degrees F.

The amateur often has great difficulty in keeping to these temperatures but here is a very simple and effective method.

Use a two-gallon polythene bucket or boiler with lid. Bring just under two gallons of water to 150 degrees F., pour them in the bucket, and scatter in two pounds of crushed malt (the extraction is much greater from the ground malt).

Then insert a 50-watt glass immersion heater, put the lid on the bucket, cover with a blanket or thick cloth, and leave on overnight or for a period of eight hours. The temperature with these quantities and with this type of heater will remain between 130 and 150 degrees F., and the extraction is first-rate.

Such a heater will last for years and is quite inexpensive —7/6 or so—and it is quite unnecessary to go to the length of using costly thermostatically controlled heaters. Current consumption is negligible.

After the eight hours extraction the liquid should be strained off into a boiler and two ounces of hops added. Make the total liquid up to three or even four gallons and boil for an hour. Strain and add 2 lb. block invert sugar (all the breweries in this country use

"invert sugar, which is wholly fermentable) then allow the brew to cool to 75 degrees F. before adding a packet of concentrated brewing yeast.

Fermentation as a rule takes three to four days and the brew may be siphoned into bottles or jars.

It is just as well to let fermentation come to an end, and then prime each bottle or jar with a little sugar syrup. This gives a nice gentle secondary fermentation, gives sparkle and head to the brew, and avoids burst bottles.

This makes a really excellent brew.

Beers

ANDOVER ALE

Ingredients:

1 lb. malt extract
1 oz. hops

1 gallon water
Brewer's (or dried) yeast
1 level teaspoon
liquid gravy browning
(caramel)

Method:

Boil all the ingredients except the yeast together for 90 minutes; add more water to restore the original volume. Strain, allow to cool until tepid, add yeast. Keep closely covered in a warm room for four days. Siphon off into strong bottles, avoiding disturbing the yeast deposit, pop half a lump of sugar into each bottle and tie down the corks with string. Keep in a really cool place. It should be ready to drink in a fortnight to three weeks, but improves with keeping.

BLACK HOME BREW

To make a black home-brew of stout-like quality, use the Cheshire Home Brew recipe, but include 1 lb. of patent black malt and 1 lb. of crushed barley in place of the crystal malt. These specialised ingredients can be obtained from Semplex, of Birkenhead.

BROWN ALE

Ingredients:

1 lb. bran
2 oz. dried hops
2 lb. Demerara sugar

Gravy browning
Yeast
3 gallons water

Method:

Put two gallons of water in a three-gallon boiler, and put third gallon by. Bring to boil. Add sugar, 2 oz. dried hops (buy Heath and Heather packeted hops from chemists), bran, and two teaspoonsful of gravy browning (the liquid variety—which is only caramel colouring). Boil gently for 1½ hours. Strain through muslin into crock and on to third gallon of cold water. Leave to cool until blood heat, then pour into three one-gallon jars, filling to shoulder only. Add brewer's yeast, if obtainable, or dried yeast, fit traps and leave for seven days (in room temperature of 65 degrees). Then siphon into half-gallon bottles (or smaller ones if these are not available), cork really tightly, tie down corks. The beer may be drunk after another week, but will not be really clear. To clarify, it should be kept at least three weeks after bottling in a cool place. And keep an eye on those corks! This is an excellent and really cheap ale, and may be made week by week to accumulate a quantity, each fresh brew being put on to part of the lees of the former one, and the surplus yeast thrown away or used for other purposes. If this system is to be followed it pays to obtain a small quantity of true brewer's yeast initially, and it can then be kept going for several months. This brown ale costs about 1/- a gallon.

CANADIAN LAGER

This recipe, for a lager specially suited to the Canadian palate, is one advocated by Wine-Art Sales Ltd., of Box 2701, Vancouver 8, B.C.

- 1 six Imperial gallon primary fermentation vessel (plastic preferred),
- 1 five Imperial gallon plastic or glass carboy and fermentation lock,
- 1 five-foot syphon tube,
- 1 plastic sheet (1 yd. sq.) to cover primary vessel,
- 1 Specific Gravity or Brix hydrometer and testing jar,
- 1 stainless steel or enamel vessel, not less than 1 Imperial gallon,
- 1 wooden or stainless steel spoon,
- 1 bottle capper for crown caps,
- 5 dozen beer bottles, tall or stubby,
- 1 immersion-type thermometer.

Ingredients:

- 5 Imperial gallons of water

1 2 ½ lb. tin of light barley malt extract
2 ozs. Branding or Ouster hops
½ oz. Kent finishing hops
4 lb. of Corn sugar (Dextrose)
1 teaspoon citric acid
2-3 teaspoons of salt
½ teaspoon yeast energiser
½ teaspoon special beer finings
1 teaspoon heading liquid
Lager beer yeast or ale yeast

note: The addition of one teaspoon of ascorbic acid at time of bottling will reduce the hazard of oxidation

Method:

Be sure to save two full cups of corn sugar for bottling; then make sure your yeast starter is ready to use. Boil as much of the water as possible. Naturally, this will depend on the size of the container you have, but not less than one gallon. Along with the water you should boil the malt extract, 2 oz. of hops (broken up and tied in cheesecloth), the salt and citric acid. Simmer very gently for 1-2 hours with a lid on to reduce evaporation. As you remove this from the heat, add the ½ oz. of Kent hops which can remain in the "wort" during the primary fermentation. Pour this hot wort over the corn sugar (minus the two cups, remember). Stir to dissolve the sugar and add the balance of the water to make up a total of five Imperial gallons.

Cover the "wort" with a sheet of plastic tied down and allow the mixture to cool to around 60 degrees F. This may take up to 12 hours, so don't hold your breath. The fermentation vessel should be in a place where the temperature will remain between 55 and 65 degrees F. When the "wort" is cool, take a Specific Gravity reading to make sure it is between 33 and 38. (The starting gravity should be 30 to 40, and the beer should finish at 0, i.e. 1.035 to 1.000). If it is not correct, you can adjust it by adding more sugar or water, depending on whether it is high or low.

Now add the active beer yeast and cover once again with the plastic sheet. After about four or five days of active ferment you can start checking the Specific Gravity to see how the ferment is progressing. It will probably take six to ten days to get down to between 5 to 10 (1.010) depending on the temperature. When it gets to this point, skim off the floating hops, add the yeast energiser, and siphon the wort into the carboy. Don't fill the carboy too full because you need room to add the "finings" at this point. Dissolve the half teaspoon of finings in one cup of very hot water (not boiling) and pour this on top of the beer in the carboy and stir in thoroughly with the handle end of your wooden spoon. The carboy should now be filled to within two or three inches of the fermentation lock which should be properly attached at this time.

Now that your beer is in the carboy with the fermentation lock attached and placed in a cool (55 to 65 degrees F.), place away from the light. It is safe even if you don't get to look at it for up to three weeks. Under normal circumstances, it will be clear and the

gravity down to zero (1.000) in about ten days. Don't worry about the extra time involved in making beer this way, inasmuch as your beer is ageing in the carboy and will be ready that much sooner after bottling. In any case, when these two things occur, i.e. the brew is reasonably clear and the gravity is down to 1,000, the time has come for bottling.

Now take those two cups of sugar saved from your 4 lb. Siphon off about two pints of beer into a clean saucepan, warm on the stove, and dissolve the two cups of sugar to make a beer sugar syrup. Be sure the saucepan is big enough because the mixture will foam all over the stove if it's not, and annoy your wife somewhat. When this is ready, siphon off the rest of the beer into your clean primary fermenter, being careful not to disturb the yeast sediment.

Save your yeast. At this time you can get your yeast back for your next brew by swirling the sediment in the bottom of the carboy and, using a small funnel, pour it into a clean beer bottle and cap immediately. Place this bottle in the crisper part of your refrigerator where it won't freeze. The next time you make beer you will not have to grow your yeast but merely take this bottle from the refrigerator, open it and add it to the "wort" when the wort is properly cooled. This yeast starter will be good in the refrigerator for approximately three to five weeks in the case of Lager yeast and two to three weeks for Ale yeast.

Now that we have the clear beer in the primary fermenter and the gravity is 1.000, stir in the syrup, making sure it is thoroughly distributed, but do not aerate the beer too much. At the same time you can be stirring in the teaspoonful of Heading Liquid. The gravity of this mixture should be approximately 1.005. We will assume that you have already prepared your five dozen bottles, that they are thoroughly clean and standing in a convenient place to be filled to within one inch of the cap. It does not matter if they are wet inside, in fact, it may make it easier to fill them by reducing the foaming. Cap them immediately and place in a temperature of 60 to 70 degrees F. for ten days and then chill and try the results of your labour.

For Ale use the same recipe with the addition of 1 oz. of gypsum, and Ale instead of Lager beer yeast.

CHESHIRE HOME BREW

Ingredients:

2 gallons water	1 oz. yeast or a packet of
2 lb. crystal malt	dried brewer's yeast
1-lb. tin of Golden Syrup	1 oz. hops
Teaspoonful of salt	

Method:

Bring the two gallons of water in the boiler up to 150 F. Add the malt and maintain at a temperature of 140-150 F. for four hours. **It is most important that the temperature never exceeds 150 F.** Strain off, and this leaves you with the wort. Add the

hops and salt to the liquor and boil for an hour. Strain again and add the syrup. Allow to cool to 65 F. and add the yeast. Ferment at between 65 and 70 F. for four days. To a large two-gallon stone jar add a tablespoonful of sugar, and then siphon in your home brew. All sediment will sink under the level of the tap, if you are using the usual home-brew type of jar. Leave in the jar, which must be quite airtight, for a week to ten days. Your homebrew is then ready to drink, and should prove a really satisfying and nourishing drink.

FROM DRIED MALT EXTRACT

Many home-brewers are now turning to the use of *dried* malt extract which is now on the market, and which is much more pleasant and convenient to handle than the sticky extract in jars.

It certainly makes an excellent brew, and readers may care to try these German recipes for its use.

It is important to use a good, sedimentary beer yeast, which will settle firmly and not rise throughout the wort, and it is best to make a starter for it a couple of days before you start brewing. These recipes are those advocated by the firm which supplies the Vierka XXXX beer yeast sold by Semplex.

In each of them, boil the dried malt and hops in the water for half an hour. Strain into two-gallon fermentation jar and fit an air lock.

Allow the liquor to cool to 70 degrees F. then add your yeast starter, and leave to ferment in a warm room for a week or eight days.

Siphon into a cask, jar with tap, or strong quart cider bottles. Make a priming syrup by dissolving 1 lb. of sugar in ½ pint of boiling water. To a 2-gallon container add 1 ½ oz. of this syrup, and to other containers and bottles proportionately, when siphoning the beer into them and this will impart a sparkle to the finished brew. With a cask or jar finings may be added at the same time. Bung down or cork securely, and after a fortnight to a month the beer will be ready to drink. Keeping it in a cool place will assist it to clear.

Here are the recipes:

Light Lager: 2 ½ lb. dried Malt Extract, 2 oz. hops, 2 gallons of water. Beer Yeast.

Lager (Pilsener style): 4 ½ lb. dried Malt Extract, 1 oz. Hops, 2 gallons water, Beer Yeast.

Lager (Munich style): 5 lb. dried Malt Extract, ½ oz. of Caramel, 1 oz. Hops, 2 gallons water, Beer Yeast.

Dark Beer or Porter: 6 ½ lb. dried Malt Extract, 1 oz. of Caramel, 2 gallons water, Beer Yeast,

Ale: 6 ½ lb. dried Malt Extract, 2 gallons water, 2 oz. Hops, Beer Yeast.

Written by John Nott, cook to the Duke of Bolton
in 1726

TO MAKE COCK ALE

Take a couple of young cocks, boil them almost to a jelly in water, and put them into four gallons of ale; put in also a pound of raisins of the sun stoned; infuse a pound of dates, mace and nutmegs, of each two ounces, in a quart of canary; put them to the ale; strain and squeeze out liquor, and put to it half a pint of new ale yeast. Let it work for a day; you may drink it the next but it is better the third day; you may make it weaker by mingling it with plain ale as you draw it, or you may put it into a firkin of ale. It is good against a consumption and to restore decayed nature.

HOW TO START A GINGER BEER PLANT

Grow a Ginger Beer Plant with 2 oz. baker's yeast (buy it at a baker's where bread is baked on the premises). Put the yeast into a jar and add $\frac{1}{2}$ pint water, 2 level teaspoons of sugar, and 2 level teaspoons of ground ginger.

Feed it each day for the next seven to ten days, add 1 teaspoon of sugar and 1 teaspoon of ground ginger. You will see your "plant" growing day by day.

Strain it Now strain the mixture through a piece of muslin or a very fine household sieve (keep the sediment) and add to the liquid the juice of 2 lemons, 1 lb. granulated sugar and 1 pint warm water. Stir until the sugar has dissolved, then make up to 1 gallon with cold water.

Bottle it. Put the ginger pop into bottles, filling to about three inches from the top, and leave for two hours, taking care not to put them on a stone floor, unless standing on a piece of wood, Then cork lightly. Keep for seven to ten days before drinking.

WARNING: ON NO ACCOUNT USE SCREW STOPPERS. (This is important, to avoid burst bottles).

And start again. The sediment you had left when you strained the mixture is divided into two and put into separate glass jars. And you're back in the brewing business again! But now you have two plants instead of one. If one plant is enough for you, give the other to a friend and give him the recipe. To your sediment add half a pint of cold water and carry on as before from "Feed it . . ."

HOME-BREW

By Mr. G. W. Reeves, of Cottage-by-the-Willows, 5 Willow Grove, Malton Road, York:

Ingredients:

1 lb. pure malt extract
1 lb. sugar
1 oz. hops

1 gallon water
 $\frac{1}{2}$ teaspoon salt
Yeast

Method:

Dissolve the malt extract, sugar and salt in the warmed water then add most of the hops and boil for ½ hour, adding the remainder of the hops five minutes before the end. Strain into a wide-necked jar so that it is filled to within 1 ½ inches of the top, and cover well.

When cool add the yeast which should be dried brewer's or lager type.

The ferment should be complete within a week. When quite sure the ferment is complete, rack off and add 2 oz. of sugar, stirring thoroughly.

Bottle in screw-top bottles, and in a few days the homebrew will be sparkling and ready to drink.

HONEY BEER

Ingredients:

4 quarts water	4 oz. clear honey
1 oz. ground ginger	Juice of 3 lemons
1 lb. white sugar	Yeast
2 oz. lime juice	

Method:

Boil two quarts of water with the ginger for half an hour. Put in a pan with the sugar, lime juice, honey, lemon juice and the remaining two quarts of water (cold). When just at blood heat, i.e. when you can bear your finger in it comfortably, add the yeast, a general-purpose wine yeast or a level teaspoonful of granulated yeast. Let it remain, closely covered, in a warm place for 24 hours, then strain through muslin. Allow to settle for an hour or two, then bottle, but use strong bottles and keep an eye on the corks!

MILD BROWN ALE

Ingredients:

5 oz. hops	2 level teaspoonsful granulated
8 gallons water	yeast
3 lb. brown sugar	

Method:

Boil the hops and water together slowly for about 40-50 minutes, strain over the sugar, and allow to cool. When tepid add the yeast. Turn into a pan or tub to ferment for four days (at 65 degrees, up to a week if temperature is lower), then bottle. Tie down corks. Can be drunk within a fortnight but may take a month really to clear.

BARLEY WINE

(By P. Bryant)

Ingredients:

1 ¾ lb. pale malted barley	1 level teaspoon ammonium sulphate
2 ozs. flaked rice or 4 ozs. polished barley	1 level teaspoon gypsum
1 oz. hops	½ teaspoon salt
1 lb. sugar	1 Campden tablet
1 level teaspoon citric add	1 gallon water
	Champagne yeast

Method:

Pick over and then put malted barley and adjunct through mincer to form the grist. Heat one gallon of water to 68 degrees C. in 12-pint saucepan on very low gas; add grist and maintain temperature at 62-68 degrees C. for two hours. Strain through kitchen sieve and then replace wort in saucepan, add hops and gypsum and boil for 40 minutes. Strain again, cool and take S.G., which should be around 48. Add 1 lb. sugar, Campden tablet, citric acid, ammonium sulphate, and champagne yeast, and commence fermenting in two-gallon polythene bucket with lid. Fermentation will be strong within 12 hours. Skim brown scum from surface each day and after two days siphon into gallon jar and fit fermentation lock. When clearing begins (which may be after six weeks) rack and refit lock. When clear, rack again, cork up, and store for six months, after which it may be bottled.

MILK STOUT

Ingredients:

2 lb. patent black malt	4 gallons water
6 oz. flaked barley	1 pkt. vitamin yeast food
2 lb. glucose (powdered)	1 oz. of hops
1 pkt. dried brewing yeast	1 teaspoonful of salt

Method:

Bring the water in the boiler to 150 degrees F., add the malt and flaked barley. Keep at a steady 140-150 degrees F. for four hours. Great care should be taken that the temperature does not exceed 150 degrees F. during the whole of the four-hour period, for this is important in the extracting of the maltose, and is almost the most vital process in this particular type of brewing. Strain, discard the malt, and add the hops and salt. Boil for a further hour. Place 2 lb. of glucose in the crock, and pour over it the hot wort. Stir well. Leave until the temperature is 65 degrees F. then scatter on the yeast and yeast food,

and stir well in. Ferment in the usual way for 48 hours in a warm place, then siphon into bottles or jars. The brew is ready to drink in about a week. Flaked maize can also be used to great advantage in all home brews, in place of the flaked barley.

NETTLE BEER

Ingredients:

2 gallons nettles	2 oz. hops
¼ oz. root ginger	4 oz. sarsaparilla
4 lb. malt	2 gallons water
1 level teaspoonful granulated	1 ½ lb. sugar
yeast	2 lemons

Method:

Choose young nettles. Wash and put into a saucepan with water, ginger, malt, hops and sarsaparilla. Bring to the boil and boil for ¼ hour. Put sugar into a large crock or bread pan and strain the liquor on to it; add the juice of the two lemons. Stir until the sugar has dissolved, and allow to cool to 70 degrees F., keeping pan covered, then stir in the yeast. Keep the crock, covered, in a warm room for three days, then strain the beer into bottles, cork, and tie down or wire the corks. Keep the beer in a cool place for a week before drinking—and keep an eye on the corks.! This makes an excellent summer drink and should be made in May.

SPRUCE BEER

To make the beer the recipe is as follows:

Melt 2 lb. sugar, treacle, essence of malt, molasses, or honey, into a gallon of hot water, put in cask or fermentation vessel, add one gallon cold water and two tablespoonsful of the essence of spruce. When the must is tepid add ale yeast. Ferment for two days and bottle. It will be ready for use within one week.